Figure 1. Multi-modality imaging from a representative LN patient. Left: Map of the initial rate of enhancement (DYNAMIKA™) from DCE-MRI showing the degree of perfusion (the white-yellow colors correspond to increased and the redder colors decreased perfusion) in which decreased perfusion can be seen in the anterior pole of the right kidney (arrow); Left center: DWI sequence that shows diffusion; Right center: T1rho illustrating fibrosis; and Right: T2*Map/BOLD to investigate tissue oxygenation within the renal medullary tissue.

Conclusion: The initial assessment of 5 LN subjects has established the feasibility of multi-modality imaging as a tool to evaluate LN in a multi-center study. By assessing functional and structural MRI outcomes and correlating them to clinical data, this study will provide essential preliminary evidence on the value of multi-modality imaging in diagnosis and evaluating the response to treatment of LN patients.

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AB0535

FACTORS RELATED TO FATIGUE IN SYSTEMIC LUPUS ERYTHEMATOSUS: A COHORT CROSS-SECTIONAL STUDY

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Background: Fatigue is the most prevalent symptom in Systemic Lupus Erythematosus (SLE) as it is present in up to 90% of patients; it is considered to be the most disabling symptom in around half of the patients [1,2]. Its aetiology is multi-factorial and there is conflicting evidence on the relationship between fatigue and SLE disease activity, and between fatigue and vitamin D deficiency. The Ad Hoc Committee on Systemic Lupus Erythematosus Response Criteria for Fatigue recommended the Fatigue Severity Scale (FSS) for the measurement of fatigue in SLE [2,3].

Objectives: The aim of the study was to characterise the relationship between fatigue and other factors, including disease activity, vitamin D level, pain, depression, anxiety, sleep quality and exercise in SLE. Moreover the prevalence of fatigue in the Maltese population of SLE patients was established.

Methods: 92 SLE patients, who fulfilled the SLICC classification criteria for SLE, gave informed consent to participate in the study. This consisted of an interview, blood and urine tests, and filling the questionnaires: Fatigue Severity Scale (FSS), visual analogue scale (VAS) for fatigue, Hospital Anxiety and Depression Scale (HADS), VAS for pain, Pittsburgh Sleep Quality Index (PSQI) and modified Health Assessment Questionnaire (mHAQ). SLE disease activity was measured by SLE disease activity index-2K (SLEDAI-2K). Approval to carry out this study was obtained from the University Research Ethics Committee.

Results: The mean age of the cohort studied was 46.9 years. 92.4% were females and the median disease duration was 13 years. 56.5% had an abnormal level of fatigue (FSS >3.7) and the median FSS was 4.17. Fatigue measured by FSS, had a significant correlation with VAS Pain (R=0.536, p<0.001), HADS-D (R=0.535, p<0.001), HADS-A (R=0.395, p<0.001), PSQI (R=0.551, p<0.001) and mHAQ (R=0.435, p<0.001). VAS fatigue had a significant correlation with SLEDAI-2K (R=0.247, p=0.018). There was no significant relationship between fatigue and vitamin D level or regular exercise. ANCOVA analysis showed that fatigue measured by

FSS and VAS fatigue was significantly dependant on depression measured by HADS-D (p<0.001) and VAS pain (p<0.001).

Conclusion: Fatigue is highly prevalent in SLE patients. This study identified a number of factors that are significantly related to fatigue; of these it is most strongly dependent on depression and pain. This suggests that the aetiology of fatigue in SLE is multi-factorial and that in SLE patients reporting fatigue, the underlying cause needs to be identified and treated.

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AB0536

PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS AND LYMPHOMA AT A TERTIARY HOSPITAL: DESCRIPTIVE ANALYSIS OF NINE PATIENTS

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Background: Evidence of an increased risk to develop haematological malignancy, and especially non-Hodgkin's lymphoma (NHL) in autoimmune diseases, has been gathered since the 1970s. In the last decade studies from SLE cohorts have consistently shown a markedly increased risk of NHL.

Objectives: To analyze clinical and disease characteristics in SLE patients who developed a lymphoma during follow-up, as well as to define characteristics of the lymphoma and its evolution.

Methods: Retrospective observational, longitudinal study conducted in a tertiary hospital. Medical records of 362 patients with ≥4 SLICC classification criteria of SLE were reviewed, including those with lymphoma diagnosis. Demographic and clinical data, comorbidities, SLE manifestations and therapy, data related to lymphoma and outcome were collected. Descriptive statistic analysis with measures of central tendency and measures of variability was performed.

Results: Of the 362 SLE patients, 9 (2.5%) were diagnosed of lymphoma, of which 100% female. Mean age at SLE diagnosis was 34 y.o (SD 11) and average duration from SLE diagnosis to lymphoma was 17 years (SD 14). 7 patients were caucasian and 2 hispanic. Observed comorbidities were hypertension (6 pt, 67%), diabetes (2 pt, 22%), dyslipidemia (3 pt, 33%), HBV infection (1 pt, 11%) and active smoking (6 pt). No malignancy history was detected. Most frequent SLE features were haematological (9 pt, 100%), joint (5 pt, 56%) and skin (5 pt) involvement. The serious ones were: 3 patients with haemolytic anaemia (1 of them, platelets <20000), 2 epilepsy (1 of them with CNS vasculitis), 1 glomerulonephritis, 1 pulmonary hypertension and 1 hemophagocytic syndrome. Only 1 patient had overlap with Sjögren's syndrome. At the time of lymphoma diagnosis, 7 patients were on steroids, 4 on immunosuppressants (2 mycophenolate, 1 azathioprine and 1 rituximab) and 3 on antimalarials (Table 1). Mean age at lymphoma diagnosis was 51 y.o (SD 10). 5 patients (56%) had diffuse large B-cell lymphoma (DLBCL), 1 had NHL, 1 had Hodgkin's lymphoma, 1 had mantle B-cell lymphoma and 1 had MALT lymphoma. Only 1 patient, of 4 with available data, had EBV positive in the tissue. 7 patients (78%) received chemotherapy and 2 patients completed treatment with autologous peripheral stem-cell transplantation. Three patients died, 2 due to lymphoma and one due to other causes (severe flaccid paralysis, Miller Fisher syndrome). Overall survival after lymphoma diagnosis was 8 years (SD 6).

Conclusion: In our patients, unlike that reported in the literature, lymphoma diagnosis was in SLE with longer duration of the disease, and all cases were female. Most frequent subtype was NHL, and all patients had previous haematological manifestations. Regarding previous SLE treatments, 5 patients had been exposed to immunosuppressants.

n	Manifestations	Haematological	Immunological	Steroid at lymphoma diagnosis*	Immunosuppressant at lymphoma diagnosis*
1	Rash, photosensitivity, arthritis, pleuritis, pericarditis	Leucopenia	ANA, DNA, SS-A, low C	Yes	Azathioprine (AZA)
2	Arthritis	Haemolytic anaemia	ANA, Sm, SS-A	No	No
3	Rash, photosensitivity, discoid, oral ulcers, pericarditis	Lymphopenia	ANA, RNP	Yes	No
4	Rash, arthritis, epilepsy, fever, adenopathies	Leucolymphopenia	ANA, DNA, Sm, low C	Yes	Mycophenolate (previous AZA)
5	Discoid, photosensitivity, fever, hemophagocytic syndrome	Leucolymphopenia thrombocytopenia		Yes	Previous cyclophosphamide
6	Oral ulcers	Platelets <20000, haemolytic anaemia	ANA, SS-A, low C	Yes	Rituximab
7	Rash, photosensitivity	Leucolymphopenia	ANA, SS-A, SS-B, low C	Previous	No
8	Arthritis, epilepsy, CNS vasculitis, stroke, pleuritis, pericarditis	Thrombocytopenia	ANA	Yes	No
9	Arthritis, stroke, glomerulonephritis	Haemolytic anaemia, thrombocytopenia	ANA, DNA, RNP, SS-A, low C	Yes	Mycophenolate

*Mean time with immunosuppressant previous to lymphoma was 2 years and with steroid 12 years

Disclosure of Interests: None declared

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AB0537 CHRONIC DAMAGE CONTRIBUTION TO COGNITIVE IMPAIRMENT IN PRIMARY ANTIPHOSPHOLIPID SYNDROME

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Background: There is a gamut of affections at neurological level in patients with primary APS (PAPS) including cognitive impairment (CI). It presents in middle age population carrying a high risk of dementia.

Objectives: To analyze the impact of chronic damage in CI and its associated factors in patients with PAPS.

Methods: Cross-sectional study in patients with PAPS (Sidney criteria). Demographic, clinical data, comorbidities and treatment were investigated. For the diagnosis of CI, MoCA version 8.1 questionnaire was employed and HAD questionnaire for depression screening. Patients were divided into 2 groups: with and without CI. Chronic damage was measured with DIAPS, considering chronic damage as the damage established for over 6 months and with a score ≥ 1 . Descriptive statistics, and chi square test were used.

Results: Sixty PAPS patients were included, 76.7% were females. Clinical characteristics, associated risk factors and cognitive assessment by domain in both groups are shown in table 1. Only 1 patient presented depression and 3 had anxiety/depression by HAD test. Mild CI was present in 61.7%, moderate CI in 6.7% and no CI in 31.7%. Median DIAPS score was 3, Interquartile Range 2-5.75. Thirty patients with CI had a DIAPS score ≥ 3 (p=0.007). Persistence of positivity for aCL was associated to CI (p=0.004).

Conclusion: The high score of DIAPS and persistence of aCL were associated with CI in PAPS. Chronic stress generated by accumulated chronic damage coupled with APS vasculopathy may contribute to cognitive deterioration. Prevention of chronic damage as well as a cognitive intervention are necessary in order to decrease CI.

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Table 1. Demographic characteristics, risk factors and cognitive evaluation in PAPS patients.

	Without CI (n=19)	With CI (n=41)
Demographic factors		
Age (years)	48.1 $\pm$ 14.7	49.0 $\pm$ 12.8
Education (years)	13.8 $\pm$ 3.5	12.0 $\pm$ 4.3
Disease characteristics		
Age at diagnosis (years)	36.0 $\pm$ 12.5	35.7 $\pm$ 10.9
Course (months)	229.9 $\pm$ 182.6	222.8 $\pm$ 144.8
Stroke history (%)	15.8	41.0
+aCL (%)*	73.7	92.0
B2GPI-1 (%)	52.6	35.9
Triple aPL (%)	23.1	42.1
Use of drugs associated to cognitive impairment		
Benzodiazepines (%)	10.5	20.5
Cognitive impairment by domain		
Cognitive alteration (%)	63.2	76.9
MoCA test score	26.8 $\pm$ 1.2	22.1 $\pm$ 2.8
Executive-Visuospatial (Mdn, range)	5, 3 – 5	4, 2 – 5
Identification (Mdn, range)	3, 3 – 3	3, 1 – 3
Attention (Mdn, range)	6, 4 – 6	5, 1 – 6
Language (Mdn, range)	2, 1 – 3	2, 0 – 3
Abstraction (Mdn, range)	2, 1 – 2	2, 0 – 2
Deferred memory (Mdn, range)	3, 0 – 5	1, 0 – 5
Orientation (Mdn, range)	6, 5 – 6	6, 5 – 6
Dementia risk (%)	5.3	46.2

*p < 0.05

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AB0538 INFLUENCE OF IMMUNOLOGICAL FEATURES, DISEASE ACTIVITY AND FATIGUE ON THE HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH PRIMARY SJOGREN'S SYNDROME

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Background: Studies show that the health-related quality of life (HRQoL) is significantly reduced in patients with primary Sjogren's syndrome (pSS). However, potential predictors of HRQoL in these patients are not well known.

Objectives: To investigate potential influence of main immunological features, fatigue and disease activity on the HRQoL in patients with pSS.

Methods: We studied 41 consecutive in- and outpatients with pSS diagnosed according to the AECG criteria in the Clinic of Allergy and Immunology. The SF-36 questionnaire has been used to assess HRQoL. The SF-36 values have been compared with the population based reference values. Fatigue was assessed using Fatigue Severity Scale (FSS). ESSDAI was used for the evaluation of systemic involvement and disease activity and ESSPRI for the evaluation of the patient-reported outcomes.

Results: There were 38/41 female patients. The mean age was 56.2 $\pm$ 13.5 years and the mean disease duration was 3.9 $\pm$ 5.8 years. HRQoL was reduced in almost all SF-36 domains in the comparison to healthy population: physical functioning (PF) (p=0.0161); role physical (RP) (p=0.0005); social functioning (SF) (p=0.0234); role emotional (RE) (p=0.0421). The mean value of FSS score was 4.6 $\pm$ 2.2, with 53.6% of patients having FSS score more than 4.8 (which is considered to be pathological). There were no significant differences in HRQoL depending on the presence of ANA (p=0.44), anti-SSA Abs (p=0.0756), anti-SSB Abs (p=0.218), cryoglobulins (p=0.8), complement consumption (p=0.122). Patients with elevated values of RF had significantly higher HRQoL (p=0.00453). Serum IgG concentrations positively correlated with HRQoL (rho=0.488, p=0.00139), and especially with the domains of SF (rho=0.502, p=0.0005) and PF (rho=0.491, p=0.00129). We found a significant negative correlation between HRQoL and FSS score (rho=-0.794, p<0.001). The mean ESSDAI score was 3.8 (0-23), and 75.6% of patients had some level of disease activity according to ESSDAI. Patients with low disease activity had higher HRQoL compared to those with moderate disease activity in following SF-36 domains: physical composite score (PCS) (p=0.0148), PF (p=0.0328), RP (p=0.00697) and vitality (VT) (p=0.05). The mean ESSPRI score value was 5.1 $\pm$ 2.7 (dryness scale – 6.1, fatigue scale – 5.4, limb pain scale – 3.8). ESSPRI score negatively correlated with HRQoL (rho=-0.763, p<0.001) in all SF-36 domains.

Conclusion: Our study identified ESSDAI, ESSPRI and FFS scores, serum RF and IgG concentrations as potential predictors of HRQoL in patients with pSS.