the gold standard of confirming the diagnosis of lupus nephritis but the assessment of reversibility and follow-up remain a challenge. In particular there is a need for non-invasive methods in situations of an unfavourable benefit/risk ratio (e.g., risk of bleeding, suspected minor changes). Non-contrast functional multiparametric MRI (mpMRI) can provide information on morphology, perfusion, and microstructure. Initial studies show changes in renal pathologies.[1] Renal T1 mapping shows changes in acute kidney injury, but it also correlates with fibrosis and loss of function in chronic kidney disease.[2, 3] The aim of this pilot study was to investigate the feasibility of mpMRI including T1 mapping, the latter not yet described in lupus nephritis.

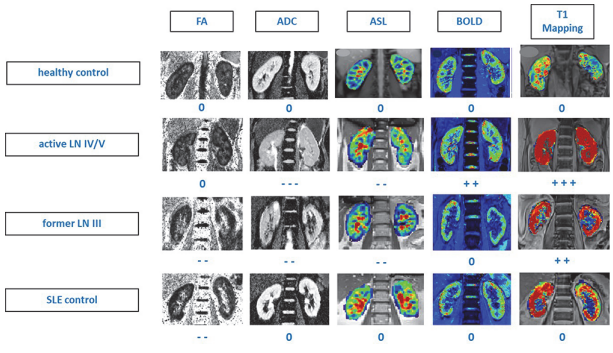
Methods The renal mpMRI protocol applied in this study includes techniques for non-contrast assessment of tissue perfusion (Arterial Spin Labeling; ASL), tissue oxygenation (Blood Oxygenation Level Dependent; BOLD) and tissue integrity and structure assessment techniques such as T1 mapping, the apparent diffusion coefficient (ADC) and fractional anisotropy (FA). We compared the renal mpMRI in three affected SLE patients with different states of renal involvement (active vs. former vs. no renal involvement): 1. Active LN IV/V (Creatinine 0.69 mg/dl, Proteinuria 3.2 g/g Creatinine, Erythrocyturia 201/µl, 70% dysmorphic erythrocytes). 2. Former LN III (2011) (2021: Creatinine 1.44 mg/dl, Proteinuria 0.26 g/g Creatinine, Erythrocyturia 26/µl). 3. SLE without evidence of renal involvement (Creatinine 0.77 mg/dl, Proteinuria <0.15 g/g Creatinine, Erythrocyturia 25/µl).

Results Case 1 (active LN IV/V) shows a decrease in ADC as a possible sign of edema and a reduction in renal blood flow. Tissue oxygenation, as a possible correlate of active inflammation, is clearly increased. Cortical T1 times are strongly increased, which might be caused by edema.

Case 2 (former LN III) shows reduced medullary FA as an indication of (chronic) tubular damage. Renal oxygenation is normal. Renal blood flow and ADC are slightly decreased, while T1 times are slightly increased, which might be expression of a fibrotic process.

Case 3 (control) also shows reduced medullary FA, while other parameters are normal (figure 1).

Conclusions Multiparametric renal MRI of patients with LN shows differences in renal involvement and between acute and chronic manifestation. First examples of T1 mapping suggest applicability to this condition. Further studies are planned to establish this promising method in diagnosis, prognosis assessment and therapy control of renal involvement in SLE.



Abstract PO.5.118 Figure 1 mpMRI images of a healthy control, a patient with active LN III and a patient with SLE without evidence of renal involvement. *FA (fractional anisotrophy), ADC (apparent diffusion coefficient), ALS (arterial spin labelling), BOLD (blood oxygen level dependent)*

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Friday 07 October 2022 from 13:00 to 14:10

Po.6 E- poster session 6: management and recommendations, old and new therapies/ biologics

PO.6.119 LOW-DOSE BELIMUMAB AND ANTIMALARIAL AGENTS PREVENT RENAL FLARES IN SYSTEMIC LUPUS ERYTHEMATOSUS: RESULTS FROM FOUR RANDOMISED CLINICAL TRIALS

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10.1136/lupus-2022-elm2022.141

Purpose Renal flares contribute substantially to morbidity, renal survival and death in systemic lupus erythematosus (SLE). Identification of pharmacological strategies for the prevention of renal flares is a key unmet need in SLE treatment. In the present study, we tested the hypothesis that the use of belimumab and antimalarial agents (AMA) protects against the development of renal flares.

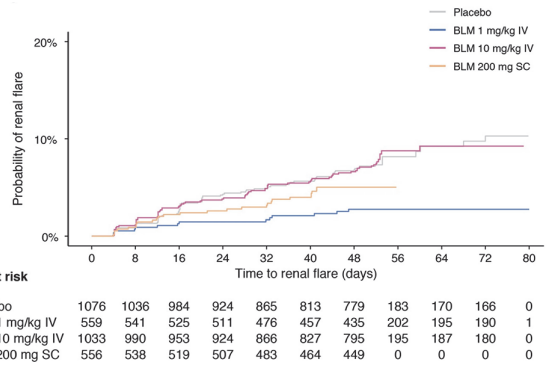
Methods We pooled data from the BLISS-52, BLISS-76, BLISS-SC and BLISS-Northeast Asia (NEA) randomised clinical trials of belimumab (N=3225). Serologically active SLE patients with active disease were recruited and followed for 52 weeks in BLISS-52, BLISS-SC and BLISS-NEA and for 76 weeks in BLISS-76; patients with active severe lupus nephritis (LN) were excluded. Patients were allocated to receive intravenous (IV) belimumab 1 mg/kg (N=559), IV belimumab 10 mg/kg (N=1033), SC belimumab 200 mg (N=556) or placebo (N=1077) in addition to standard therapy. The outcome of the present post-hoc analysis was development of renal flares, defined as a reproducible (i) increase in proteinuria to >1 g/day if the baseline value was <0.2 g/d; >2 g/day if the baseline value was 0.2–1.0 g/d; or >2 times the baseline value if this was >1g/d, (ii) increase in serum creatinine ≥20% or 0.3 mg/dL, accompanied by proteinuria, haematuria or red blood cell (RBC) casts, or (iii) new haematuria of glomerular origin, accompanied by proteinuria or RBC casts. The hazard of renal flare was assessed with Cox proportional hazards regression models. Analyses were adjusted for age, sex, ethnicity, previous renal involvement, baseline proteinuria and glomerular filtration rate, and use of glucocorticoids and immunosuppressants.

Results Demographic and clinical characteristics are shown in Table 1. The proportion of patients presenting a renal BILAG A-D at baseline was 54.6%. In the pooled population, 192 patients developed a renal flare after a median of 141 days. In multivariable Cox regression analysis, use of AMA was associated with a lower risk of renal flares (hazard ratio [HR]: 0.66; 95% confidence interval [CI]: 0.49–0.88; p=0.005). Compared with placebo, the risk of renal flares was lower

Abstract PO.6.119 Table 1 Demographic and clinical characteristics

	All patients	BLM 1 mg/kg	BLM 10 mg/kg	BLM 200 mg	Placebo
	N=3225	N=559	N=1033	N=556	N=1077
Age at baseline (years)	36.7 ± 11.6	37.4 ± 11.3	35.3 ± 10.9	38.1 ± 12.1	37.1 ± 11.9
Female sex (%)	3030 (94.0)	524 (93.7)	977 (94.6)	521 (93.7)	1008 (93.6)
Ancestry					
Asian (%)	1242 (38.5)	112 (20.0)	597 (57.8)	119 (21.4)	414 (38.4)
Black/African American (%)	234 (7.3)	48 (8.6)	50 (4.8)	56 (10.1)	80 (7.4)
Indigenous American (%)	449 (13.9)	131 (23.4)	126 (12.2)	45 (8.1)	147 (13.6)
White/Caucasian (%)	1300 (40.3)	268 (47.9)	260 (25.2)	336 (60.4)	436 (40.5)
Renal BILAG					
A (%)	46 (1.4)	6 (1.1)	15 (1.5)	11 (2.0)	14 (1.3)
B (%)	481 (14.9)	56 (10.0)	178 (17.2)	88 (15.8)	159 (14.8)
C (%)	903 (28.0)	139 (24.9)	314 (30.4)	129 (23.2)	321 (29.8)
D (%)	331 (10.3)	37 (6.6)	123 (11.9)	61 (11.0)	110 (10.2)
E (%)	1464 (45.4)	321 (57.4)	403 (39.0)	267 (48.0)	473 (43.9)
UPCR (mg/mg)	0.2 (0.1–0.5)	0.1 (0.1–0.4)	0.2 (0.1–0.8)	0.1 (0.1–0.3)	0.2 (0.1–0.5)
Serum creatinine (µmol/L)	68.0 ± 20.5	72.1 ± 21.3	66.2 ± 21.0	67.3 ± 18.8	68.0 ± 20.1
Renal flares during follow-up (%)	192 (6.0)	14 (2.5)	76 (7.4)	26 (4.7)	76 (7.1)

BLM: belimumab; UPCR: urine protein/creatinine ratio



Abstract PO.6.119 Figure 1 Renal flares over time

among patients receiving IV belimumab 1 mg/kg (HR: 0.45; 95% CI: 0.25–0.81; p=0.007), but not IV belimumab 10 mg/kg (HR: 0.79; 95% CI: 0.57–1.09; p=0.148) or SC belimumab 200 mg (HR: 0.93; 95% CI: 0.58–1.47; p=0.749). In subgroup analyses including patients with renal BILAG A-D at baseline, these negative associations with renal flares held true for the use of AMA (HR: 0.67; 95% CI: 0.49–0.92; p=0.013) and IV belimumab 1 mg/kg (HR: 0.45; 95% CI: 0.24–0.87; p=0.017).

Conclusions Low-dose belimumab and AMA were independently associated with a lower risk of renal flare in patients with active SLE from an RCT setting. Add-on high-dose belimumab has been approved for the treatment of active LN; the inability to show a protective effect of high-dose belimumab against renal flares in the present study implies that proteinuria levels may have to be considered for dose-adjustment of belimumab in clinical practice, and that investigation of the effect of intermediate doses of belimumab bears merit.

PO.6.120 NON-PHARMACOLOGICAL MANAGEMENT OF SYSTEMIC LUPUS ERYTHEMATOSUS AND SYSTEMIC SCLEROSIS: A SYSTEMATIC LITERATURE REVIEW TO INFORM EULAR RECOMMENDATIONS

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10.1136/lupus-2022-elm2022.142

Purpose The heterogeneity and complexity of the chronic autoimmune diseases systemic lupus erythematosus (SLE) and systemic sclerosis (SSc) necessitate a comprehensive person-centred management, including non-pharmacological approaches. However, recommendations for non-pharmacological management are currently lacking. The aim of this systematic literature review was to inform the EULAR task force recommendations for the non-pharmacological management of adult patients with SLE and SSc, focusing on (i) types of non-pharmacological interventions that have been evaluated and (ii) their target health domains or organ systems.

Methods The Medline, Embase, Web of Science Core Collection and CINAHL were searched for articles published between January 2000 and June 2021. From the initial search (n=15,803), 2 researchers independently performed the article selection. Conflicts were discussed until consensus with 2 additional researchers. Subsequent data extraction from the selected articles was performed by 4 researchers, with an overarching guidance by 2 additional researchers. Risk of bias assessment was performed according to the Joanna Briggs Institute critical appraisal checklists (presented in the table below).

Results A total of 114 articles for SLE and 92 for SSc were selected for analysis. Non-pharmacological interventions identified for SLE included physical exercise (n=34), psychological interventions (n=21), patient education and self-management (n=20), dietary therapy and nutrition (n=15), complementary and alternative medicine (CAM) e.g., Chinese medicine (n=5), photoprotection (n=5), health care (n=4), laser treatment (n=4) and social support (n=2). Interventions identified for SSc included physical exercise e.g., hand, oral and general exercise (n=37), laser treatment/phototherapy (n=11), patient education and self-management (n=11), CAM (n=10), bathing e.g., hand-bathing in paraffin (n=9), manual therapy e.g., osteopathic manipulative treatment (n=8), dietary therapy and nutrition (n=6), shockwave therapy (n=5), multidisciplinary care (n=4), hyperbaric oxygen or ozone therapy (n=3) and oral hygiene (n=3). Target health domains and organ systems identified within SLE included (in descending order) (i) health-related quality of life (HRQoL), (ii) disease activity, (iii) fatigue, (iv) depression, (v) inflammatory markers, (vi) pain, (vii) anxiety, (viii) organ damage, (ix) body composition/anthropometry, and (x) self-efficacy. Intervention targets in SSc included (i) functional impairment e.g., hand mobility, (ii) skin sclerosis including microstomia, (iii) HRQoL, (iv) pain, (v) circulation e.g., Raynaud's phenomena and telangiectasias, (vi) patient education, (vii) skin ulcers, (viii) biomarkers, (ix) digestion, and (x) oral hygiene.

Conclusions Physical exercise and patient education were among the most extensively studied categories of non-pharmacological intervention in both SLE and SSc. HRQoL was a frequently targeted health domain in both diseases. Current evidence is limited by the overall small study populations, and the lack of large RCTs with long-term follow-up periods.