useful for assessing disease activity², the relation between MRI findings and RPILD has not been investigated.

Objectives: In this study, we assessed whether WB-MRI findings are related with RPILD in patients with DM.

Methods: This retrospective study comprised 33 patients with DM who underwent WB-MRI in our hospital before the initiation of treatment for myositis. Muscular and myofascial signal abnormalities were scored on 42 muscular groups. The ratio of myofascial score to muscular score (myofascia/muscle ratio) was calculated and used to evaluate myofascia-dominant inflammation. RPILD was defined as the acute onset and rapid worsening of dyspnea, hypoxemia and radiographic ILD/fibrosis within 1 month.

Results: Of 33 patients, 16 were CADM, and 24 had ILD, including 8 patients with RPILD. All patients including CADM showed abnormal signal intensity in muscle and myofascia (scores median: 15 and 21, respectively). Muscle scores positively correlated with serum level of creatine kinase ($r=0.672$, $p<0.001$). The patients with RPILD showed a significantly higher myofascia/muscle ratio compared with that in the non-RPILD patients (2.167 vs 1.000; $p=0.018$). Logistic regression analysis identified myofascia/muscle ratio >1.53 (odds ratio: 141.90, $p=0.042$) and older age (odds ratio: 1.15, $p=0.041$) as independent risk factors for RPILD.

Conclusion: We newly defined myofascia-dominant inflammation using WB-MRI as a predictor to develop RPILD in patients with dermatomyositis.

REFERENCES:

- [1] Moghadam-Kia S, et al. Anti-Melanoma Differentiation-Associated Gene 5 Is Associated With Rapidly Progressive Lung Disease and Poor Survival in US Patients With Amyopathic and Myopathic Dermatomyositis. *Arthritis Care Res.* 2016.
- [2] Malattia C, et al. Whole-body MRI in the assessment of disease activity in juvenile dermatomyositis. *Ann Rheum Dis.* 2014.

Disclosure of Interests: Kohei Karino: None declared, Michihiro Kono: None declared, Michihiro Kono Grant/research support from: GlaxoSmithKline, Yuichiro Fujieda: None declared, Masaru Kato Grant/research support from: GSK, Actelion, Speakers bureau: GSK, Actelion, Bayer, Nippon Shinyaku, Eli Lilly, Chugai, Pfizer, Ayumi, Eisai, Asahi Kasei, Toshiyuki Bohgaki: None declared, Olga Amengual: None declared, Kenji Oku: None declared, Shinsuke Yasuda Grant/research support from: Bristol-Myers Squibb Co., Paid instructor for: GlaxoSmithKline, Speakers bureau: Chugai Pharmaceutical Co., Ltd., Mitsubishi Tanabe Pharma Co., Tatsuya Atsumi Grant/research support from: Astellas Pharma Inc.,

Takeda Pharmaceutical Co., Ltd.,

Mitsubishi Tanabe Pharma Co.,

Chugai Pharmaceutical Co., Ltd.,

Daiichi Sankyo Co. Ltd.,

Otsuka Pharmaceutical Co., Ltd. and Pfizer Inc.

Alexion Inc.,

Bayer Yakuhin, Ltd, Otsuka Pharmaceutical Co., Ltd.

Chugai Pharmaceutical Co., Ltd.,

Takeda Pharmaceutical Co., Ltd.,

Eisai Co., Ltd., Bristol-Myers Squibb Co., Daiichi Sankyo Co. Ltd., Mitsubishi Tanabe Pharma Co., Asahi Kasei Pharma Co., Consultant for: ONO PHARMACEUTICAL CO., LTD

Sanofi K.K.

Daiichi Sankyo Co., Ltd.

Pfizer Inc., Speakers bureau: Mitsubishi Tanabe Pharma Co.,

Chugai Pharmaceutical Co., Ltd.,

Astellas Pharma Inc.,

Takeda Pharmaceutical Co., Ltd.,

Pfizer Inc., Daiichi

Sankyo Co. Ltd.,

Bristol-Myers Squibb Co.,

Eli Lilly Japan K.K.

DOI: 10.1136/annrheumdis-2019-eular.1251

THURSDAY, 13 JUNE 2019

Anergy, exhaustion or post-activation in autoimmunity – facts and future consequences_____

OP0214

DISTURBED PD-L1 UPREGULATION IS CHARACTERISTIC OF ANERGIC B CELLS IN SLE

Ana-Luisa Stefanski^{1,2}, Annika Wiedemann¹, Karin Reiter¹, Andreia Lino¹, Thomas Dörner¹. ¹Charité Universitätsmedizin, Rheumatology and Clinical Immunology, Department of Medicine and German Rheumatism Research Center Berlin (DRFZ), Berlin, Germany, ²University Hospital Inselspital Bern, Rheumatology, Allergology and Immunology, Bern, Switzerland

Background: Prior studies on systemic lupus erythematosus (SLE) B cells reported an altered responsiveness to TLR9 stimulation, such as proliferation, cytokine production as well as indications for impaired T and B cell interaction [1]. The role of co-inhibitory and co-stimulatory (check-point) molecules in this setting has not been delineated in detail so far.

Objectives: Assess the expression of co-inhibitory (PD-1, PD-L1 and PD-L2) and co-stimulatory molecules (CD86 and CD40) by SLE B cells after *in vitro* stimulation and their potential contribution for B cell hyporesponsiveness in SLE.

Methods: PBMCs from 10 SLE patients and 10 healthy donors (HD) were stimulated with IL-2/IL-10, anti (α) - B cell receptor (BCR), CpG and CD40L alone or in combination. Expression of PD-1, PD-L1, PD-L2 as well as CD86, CD40 on CD19+CD20+ B cell subsets after 48h stimulation was analyzed by FACS. CD71 was employed to measure proliferation of CD19+CD20+ B cells after 48h stimulation.

Results: SLE B cells exhibited a substantially decreased upregulation of PD-L1 ($p=0.0006$) and CD86 ($p=0.0188$, Fig.1) associated with significantly reduced B cell proliferation ($p=0.0039$) after 48h stimulation with CpG alone and in combination compared with HD. While TLR9 engagement in SLE B cells appeared to be abnormal, activation of CD40 resulted into a consistent upregulation of both, inhibitory and stimulatory molecules. PD-L1 was positively correlated with B cell proliferation ($p=0.003$). Notably, the expression of PD-L1 and CD86 correlated inversely with Siglec-1, as surrogate marker for interferon signature ($p<0.0001$ and $p=0.0021$ respectively). PD-L1 expression correlated inversely with cSLE-DAI ($p=0.0087$).

Fig. 1 PD-L1 and CD86 expression by SLE B cells upon stimulation is lower than in healthy donors. A. PD-L1 and B. CD86 expression by CD19+CD20+ B cells after stimulation with IL2/IL10, CpG, anti-BCR and CD40L in healthy donors and SLE patients.

Conclusion: Hyporesponsive/anergic lupus B cells are characterized by a functionally diminished PD-L1 and CD86 upregulation associated with reduced proliferation and clinical activity. The data mandate evaluations of innovative therapeutic interventions in SLE.

REFERENCE:

- [1] Schrezenmeier, E., et al., *Postactivated B cells in systemic lupus erythematosus: update on translational aspects and therapeutic considerations.* *Curr Opin Rheumatol*, 2018.

Disclosure of Interests: Ana-Luisa Stefanski: None declared, Annika Wiedemann: None declared, Karin Reiter: None declared, Andreia Lino: None declared, Thomas Dörner Grant/research support from: Eli Lilly, Janssen, Roche, UCB Pharma, Consultant for: Eli Lilly, Janssen, Roche, UCB Pharma, Speakers bureau: Eli Lilly, Janssen

DOI: 10.1136/annrheumdis-2019-eular.3186

THURSDAY, 13 JUNE 2019

Fracture liaison service: an opportunity for rheumatologists to focus on secondary fracture prevention

OP0215

THE RISK OF FIRST AND SUBSEQUENT FRACTURES IN PATIENTS WITH RHEUMATOID ARTHRITIS IN THE UK

Jo Erwin¹, Doyo Enki², Anthony Woolf¹. ¹Royal Cornwall Hospital, Truro, United Kingdom; ²Plymouth University, Medical Statistics, Plymouth, United Kingdom

Background: Osteoporosis is a well-known complication of rheumatoid arthritis (RA) (1). NICE advises that health providers do not routinely assess fracture risk in people with RA aged under 50 years unless they have other major risk factors. However, studies suggest that young people with RA are at increased fracture risk even before age 50 years (2-4).

Objectives: To measure the incidence and risk of first and subsequent fracture in adults with RA aged under 50 in the UK.

Methods: A retrospective observational cohort study with matched control using data from Clinical Practice Research Datalink (CPRD) of adults ≥ 18 years with diagnosis of RA recorded from 1987 to 2016. Patients were followed from index date to the first fracture and subsequent fracture. Cases were adults with a new diagnosis of RA with at least one day of follow-up during the period. These cases were matched to 3 controls by age, sex, GP surgery and calendar year. The date of RA diagnosis date is the index date for cases and their matched controls. CPRD data has a high level of data validity in reporting of fractures but subsequent fractures may be recorded more than once. In this analysis when subsequent fractures were of the same body part the fracture had to occur at least 6 months after the previous fracture to be classified as a "subsequent fracture". "First fracture" is the first fracture occurring after the index. "Subsequent fracture" is the fracture occurring after the first fracture. "Pre-index fracture" is a fracture that occurs before the index date.

Results: The characteristics of the study population are shown in Table 1.

Variable	Case (n=11,120)	Control (n=33,364)
	N (%)	N (%)
Age group 0-9	1,542 (13.87)	4,654 (13.95)
40-49	3,430 (30.85)	10,308 (30.90)
	6,148 (55.29)	18,402 (55.16)
Gender (female)	8,232 (74.03)	24,676 (73.96)
Glucocorticoid prescription ≤ 6 months before index	830 (7.46)	371 (1.11)
Pre-index fracture	1,648 (14.82)	4,251 (12.74)
First fracture	954 (8.57)	1,995 (5.97)
Subsequent fracture	197 (1.77)	354 (1.06)

The incidence rate of first fracture for cases was 9.02 per 1000-person years (95% CI 8.46-9.61), for controls 6.85 per 1000-person years (95% CI 6.55-7.15). The incidence rate ratio (IRR) for first fracture was 1.32 (95% CI 1.220-1.426; $p=0.00$). The incidence rate of subsequent fracture was 1.78 (95% CI 1.55-2.05) per 1000-person years for cases and 1.17 (1.05-1.29) per 1000-person years for controls. The IRR for subsequent fracture was 1.53 (95% CI 1.283-1.833; $p=0.00$). A Cox's proportional hazards model was used to estimate the hazard (or risk) of first and subsequent fracture for cases and controls stratified by age. Those with a pre-index fracture and with a glucocorticoid prescription prior to the index date had significantly higher hazard ratios for first and subsequent fracture. Women had a higher hazard ratio for first fracture.

Conclusion: This study shows that the incidence of fracture in patients with RA aged under 50 is significantly higher than in matched controls. This is true for the first fracture and for the subsequent fracture and is significantly higher for women in those under 50 for first fractures.

REFERENCES:

- [1] Van Staa TP, Geusens P, Bijlsma JWJ, et al. Clinical assessment of the longterm risk of fracture in patients with rheumatoid arthritis. *Arthritis & Rheumatism*. 2006; 54(10): 3104-3112.
- [2] Amin S, Gabriel SE, Achenbach SJ, et al. Are Young Women and Men with Rheumatoid Arthritis at Risk for Fragility Fractures? A Population-Based Study. *J Rheumatol*. 2013; 40(10): 1669-1676.
- [3] Kim SY, Schneeweiss S, Liu J, et al. Risk of osteoporotic fracture in a large population-based cohort of patients with rheumatoid arthritis. *Arthritis Research & Therapy*. 2010; 12(4):R154.
- [4] El Maghraoui A, Reziq A, Mounach A, et al. Prevalence and risk factors of vertebral fractures in women with rheumatoid arthritis using vertebral fracture assessment. *Rheumatology*. 2010; 49(7):1303-1310.

Disclosure of Interests: Jo Erwin Grant/research support from: Pfizer, Doyo Enki Grant/research support from: Pfizer, Anthony Woolf Grant/research support from: Pfizer

DOI: 10.1136/annrheumdis-2019-eular.1349

OP0216

IDENTIFICATION AND MANAGEMENT OF PATIENTS AT INCREASED RISK OF OSTEOPOROTIC FRACTURE: IMPLEMENTATION OF IMMINENT RISK FACTOR IN STANDARD DAILY PRACTICE FOR BONE MINERAL DENSITY ASSESSMENT AND PATIENT MANAGEMENT

Yasser El Miedany^{1,2}, Maha El Gaafary³, Mathias Toth⁴, Waleed Hassan⁵, Annie Mehanna⁶. ¹Ain Shams University Faculty of Medicine, Rheumatology and Rehabilitation, Cairo, Egypt; ²King's College London, London, United Kingdom; ³Ain Shams University Faculty of Medicine, Community and Public Health, Cairo, Egypt; ⁴Darent Valley Hospital, Medicine, Dartford, United Kingdom; ⁵Benha university, Rheumatology and Rehabilitation, Benha, Egypt; ⁶Ain Shams University Faculty of Medicine, Radiology, Cairo, Egypt

Background: Osteoporotic fractures are common and associated with significant morbidity, mortality, and healthcare resource use. The role of the recency of fracture has been shown for both vertebral and non-vertebral fracture risk. However, several patient characteristics contributing to imminent risk for fracture have not been well defined. Furthermore, the inclusion of imminent fracture risk in standard practice remains a challenge.

Objectives: to evaluate electronic recording of osteoporosis patients' data using online proforma to request DXA scan, analyse the correlations and the applicability of imminent fracture risk (ImFR) identification and the WHO fracture risk assessment tool (FRAX) for the prediction of osteoporotic fractures in standard practice and its implication on the patients' management.

Methods: 368 patients referred for DXA scanning were included in this work. The online referral form for DXA scanning includes 4 main components: Risk factors for osteoporosis (6 factors) to be completed by the referring doctor; 2. the 8 fracture risk factors identified in FRAX; 3. Risk factors for falls (5 factors) [1] and its score graded as low, moderate and high; 4. Risk factors for ImFR and a question Yes/No regarding the presence of ImFR. For the patients who had fracture in the last 24-months, potential risk factors during the period before fracture were assessed. The BMD as well as 10-years probability of fracture risk were analysed in patients with ImFR and those without. Risk stratification and correlation analyses were applied to analyse the associations between ImFR and FRAX-based probabilities versus BMD at different sites. Data from patients with and without recent fracture were used to identify factors associated with imminent risk for fracture.

Results: Of the 368 subjects, 181 (46.9%) were diagnosed as osteoporotic, and 187 (40.9%) were diagnosed as osteopenic. There was no significant difference on comparing the FRAX-based 10-year major osteoporotic fracture probability and hip osteoporotic fracture probability estimated with and without considering the BMD. Keeping the other factors constant, patient with ImFR had significantly ($p < 0.01$) lower BMD at both spine and hip in contrast with those without history of ImFR or history of fracture more than 10-years ago. Using data from 24-months before fracture, factors significantly associated with ImFR were high falls risk, older age, poorer functional disability and hand grip, specific comorbidities (central nervous system disease, inflammatory arthritis, Alzheimer's disease, parkinsonism, psychosis) steroid therapy and intake of drugs targeting CNS. There was no significant difference ($p > 0.05$) on comparing FRAX estimated 10-year fracture probabilities in those with ImFR compared to those who had previous fracture more than 2-years ago.

Conclusion: It is important to include the ImFR in the referral for BMD assessment. In patients with osteoporosis or osteopenia and no recent fracture, high falls risk, older age, poorer health status, comorbidities were predictive of imminent risk for fracture. Identification of patients with imminent fracture risk may help identify and risk stratify those patients most in need of immediate and appropriate treatment to decrease fracture risk.

REFERENCES:

- [1] El Miedany, et al. Falls risk assessment score (FRAS): Time to rethink. *J clin Gerontology Geriatrics* 2011;2: 21-26

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2019-eular.3757