AB1142

PROGNOSTIC VALUE OF 18F-FLUORODEOXYGLUCOSE PET-CT SCORE AT BASELINE ON THE THERAPEUTIC RESPONSE TO PREDNISONE IN PATIENTS WITH POLYMYALGIA RHEUMATICA

Nicolas Giraud¹, Maxime Sondag¹, Aline Charpentier¹, Hatem Boulahdour², Clément Prati¹, Daniel Wendling¹, Frank Verhoeven¹. ¹CHRU Besançon, Rheumatology, BESANÇON, France; ²CHRU Besançon, Nuclear imaging, Besançon, France

Background: Polymyalgia rheumatica (PMR) is one of the most common inflammatory rheumatic diseases. To date, there is no imaging procedure that can be used as a prognostic factor for good or poor response to corticosteroid therapy

Objectives: To evaluate the prognostic value of 18F-fluorodeoxyglucose PET-CT (FDG-PET/CT) score at baseline, on the therapeutic response to prednisone, in patients with polymyalgia rheumatica (PMR).

Methods: This is a monocentric retrospective study realized at the university hospital of Besançon. We included patients with a diagnosis of PMR meeting the 2012 ACR/EULAR criteria, who had performed a FDG-PET/CT at baseline, between december 2012 and december 2017. Patients were treated with an initial prednisone dose of 0.3mg/kg a day, progressively decreased following a standardized tapering dose protocol (10%/month). We excluded patients who received corticosteroids before the FDG-PET/CT, or without baseline FDG-PET/CT. Seventeen specifics previously described hotspots were visually analyzed (1). We realized a semi-quantitative analysis of FDG uptake (4-point score from 0 to 3), following Goerres scoring system (2). Hotspot with 0 indicating no uptake (same as bone); 1, slight uptake; 2, moderate uptake (same as liver); and 3, uptake higher than the liver, with a global range score of 0 to 51. Then we defined two groups of patients according to their resistance to prednisone at 12 months, defined as the reoccurrence of symptoms and/or an increase of systemic inflammation twice during the prednisone tapering.

Results: 33 patients were included: 14 (42%) in the group "resistant" and 19 (58%) in the group "sensitive". There were 57.6% of women, with a mean age of 67.57 ± 11.63 years. The mean CRP at baseline was 45.02 ± 39.59 mg/L. The mean FDG-PET/CT score at baseline was 18/51. The FDG-PET/CT score at baseline was significantly lower in the resistant group (13.1 vs 22.8/51, p = 0.019). Resistant patients were younger (61.1 vs 72.4 years, p < 0.01), and mostly men (66.5% vs 22%, p < 0.02). ROC curve showed a threshold of 9.5/51 with a sensitivity of 61.54% and a specificity of 84.21% [AUC 0.76 (+/- 0.089), p = 0.014]. There was no statistically significant difference concerning CRP at baseline (48.6mg/l vs 44.8mg/l; p = 0.58), and no correlation between CRP and PET/CT score (r = 0.25, p = 0.15). The prevalence of synovitis (21% vs 37%, p = 0.46), and neoplasia (0% vs 15.79%, p = 0.79) were similar between the two groups.

Conclusion: Our results suggest that in patients with PMR, a baseline FDG-PET/CT score over 9.5/51 score is predictive of a good response to prednisone.

REFERENCES

- [1] Sondag M, et al. Utility of 18F-fluoro-dexoxyglucose positron emission tomography for the diagnosis of polymyalgia rheumatica: a controlled study. *Rheumatology* 2016 Aug;55(8):1452-7.
- [2] Goerres GW, Forster A, Uebelhart D, et al. F-18 FDG whole-body PET for the assessment of disease activity in patients with rheumatoid arthritis. *Clin Nucl Med* 2006;31:386-90.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2019-eular.6192

AB1143

SUBCLINICAL MICROVASCULAR INVOLVEMENT IN SYSTEMIC LUPUS ERYTHEMATOSUS PATIENTS

Alberto Sulli¹, Carmen Pizzorni¹, Barbara Ruaro¹, Sabrina Paolino¹, Veronica Tomatis¹, Emanuele Gotelli¹, ^{2,3}Vanessa Smith⁴, Maurizio Cutolo¹. ¹Research Laboratory and Academic Division of Clinical Rheumatology, Department of Internal Medicine, IRCCS Polyclinic Hospital San Martino, University of Genoa, Genoa, Italy; ²Department of Rheumatology, Ghent University Hospital, Ghent, Belgium; ³Department of Internal Medicine, Ghent University, Ghent, Belgium; ⁴Unit for Molecular Immunology and Inflammation, VIB Inflammation Research Center (IRC), Ghent, Belgium

Background: Peripheral microcirculation is well studied in primary Raynaud's phenomenon (RP), but poorly investigated in systemic lupus erythematosus (SLE) (1-3).

Objectives: To investigate morphological and functional aspects of microcirculation in different skin areas of the hands in SLE patients in comparison with primary RP (PRP) patients and healthy subjects (CNT).

Methods: 15 SLE patients without RP (ACR 2013 criteria) (mean age 52 ± 13 SD years, mean disease duration 6 ± 3 years), 15 PRP patients (LeRoy 2001 criteria) (mean age 52 ± 16 years, mean RP duration 6 ± 4 years) and 15 sex-matched controls (CNT) (mean age 51 ± 16 years) were enrolled during the winter period. Nailfold videocapillaroscopy (NVC) and laser speckle contrast analysis (LASCA) have been performed in the three groups of patients. The absolute nailfold capillary number (CN) per linear millimeter at first distal row was assessed by NVC (4). Blood perfusion (BP) was detected by LASCA at the level of fingertips, periungual areas, dorsum and palm of both hands (2). Patients were not taking vasoactive drugs since at least one month before study entry. Statistical analysis was performed by non parametric tests.

Results: SLE patients showed a statistically significant lower nailfold absolute CN than both PRP and CNT (median 9.2 vs 10.2 vs 11.1, respectively, p < 0.0006). Conversely, no statistically significant difference of nailfold CN was observed between PRP and CNT. PRP patients showed a statistically significant lower BP than SLE and CNT, and SLE than CNT, at the level of fingertips (median 90, 113, 186 PU, respectively; p < 0.0001), periungual (median 75, 100, 142 PU, respectively, p < 0.0001), dorsal (median 63, 73, 126 PU, respectively, p < 0.0001), and palm areas (median 76, 95, 124 PU, respectively, p < 0.0001). A positive correlation between nailfold CN and BP was observed in all areas of hands in SLE patients (p < 0.0001). On the contrary, no statistically significant correlation was observed in both PRP and CNT, between nailfold CN and BP in all examined areas (p = 0.74 and p = 0.23, respectively).

Conclusion: SLE patients, without RP, show a subclinical microvascular impairment, having lower nailfold CN and lower BP than CNT. Conversely, PRP patients show only a functional dysfunction, having lower peripheral skin BP than both SLE patients and CNT. A correlation between morphological and functional microvascular features was also found in SLE patients. These findings seem to suggest interesting microvascular insights in active SLE patients.

REFERENCES

- [1] Ruaro B, et al. *Ann Rheum Dis* 2014;73:1181-5.
- [2] Cutolo M, et al. *J Rheumatol* 2010;37:1174-80.
- [3] Cutolo M, et al. *Autoimmun Rev* 2018;17:344-352.
- [4] Cutolo M, et al. *Arthritis Rheumatol* 2016;68:2527-39.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2019-eular.6824

AB1144

ULTRA HIGH FIELD MRI MICROARCHITECTURE ANALYSIS IMPROVES THE PREDICTION OF PROXIMAL FEMUR FRACTURE: A COMBINED STUDY WITH EX VIVO BIOMECHANICAL TESTS

Daphne Guenoun¹, Martine Pithieux², Jean-Christophe Souplet³, Sandrine Guis⁴, Thomas Le Corroller¹, Alexandre Fouré³, Vanessa Pauly⁵, Jean-Pierre Mattei⁴, Monique Bernard³, Maxime Guye³, Patrick Chabrand², Pierre Champsaur¹, David Bendahan². ¹Aix-Marseille Univ, CNRS, AP-HM, ISM, Inst Movement Sci, Radiology, Marseille, France; ²Aix-Marseille Univ, CNRS, ISM, Inst Movement Sci, Marseille, France; ³Aix-Marseille Univ, CNRS, CRMBM UMR 7339, Marseille, France; ⁴Aix-Marseille Univ, CNRS, AP-HM, CRMBM UMR 7339, Rheumatology, Marseille, France; ⁵Aix-Marseille Univ, AP-HM, Unité de recherche EA3279, Santé Publique et Maladies Chroniques: Qualité de vie concepts, usages et limites, déterminants, Santé Publique, Marseille, France

Background: The purpose of this study was to assess cadaveric proximal femurs from the points of view of bone microarchitecture using ultra-high field (UHF) 7 Tesla magnetic resonance imaging (MRI), bone strength using biomechanical tests and bone mineral density (BMD) using Dual-energy X-ray absorptiometry (DXA).

Objectives: We aimed at determining whether bone microarchitecture parameters were related to bone strength and BMD and whether UHF MRI can provide additional information regarding bone strength.

Methods: BMD of ten proximal femurs from five cadavers were investigated using DXA and the bone volume fraction (BVf), trabecular thickness (Tb.Th), and trabecular spacing (Tb.Sp), fractal dimension (FD), Euler characteristics (Euler Ch.), Connectivity density (Conn. D) and Degree of anisotropy (DA) of each femur was quantified using UHF MRI. The whole set of specimens underwent mechanical compression tests to failure.

Results: BMD and all the microarchitecture parameters except ConnD were significantly correlated with failure load (p < 0.05). The