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

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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 Besancon. 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% per 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 (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<0.0001), perigonal (median 75, 100, 142 PU, respectively, p<0.0001), doral (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 naiifold 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 naiifold CN and BP in all examined areas (p=0.74 and p=0.23, respectively).

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

Disclosure of Interests: None declared

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SUBCLINICAL MICROVASCULAR INVOLVEMENT IN SYSTEMIC LUPUS ERYTHEMATOSUS PATIENTS

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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±5 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 (LASCAl) 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 vaso- active drugs since at least one month before study entry.

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), doral (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

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

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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 Oh.), Connectivity density (Conn. D0) and Degree of anisotropy (DPD of each femur were 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