FREQUENCY AND ANATOMIC DISTRIBUTION OF MAGNETIC RESONANCE IMAGING LESIONS IN THE SACROILIAC JOINTS OF HEALTHY SUBJECTS AND PATIENTS WITH SPONDYLOARTHRITIS

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Background: Lesions detected by magnetic resonance imaging (MRI) of the sacroiliac joints are critical to the diagnosis of non-radiographic axial spondyloarthritis (1). However, some lesions, such as bone marrow edema (BME), usually observed in patients with spondyloarthritis may be encountered in other conditions. BME have been described in patients with non-specific back pain, healthy subjects, women with postpartum and in athletes (2). Moreover, it has recently been shown that structural lesions of the sacroiliac joint, such as erosions and fat metaplasia, may be present in healthy subjects (3).

Objectives: To evaluate and compare the frequency and location of lesions (BME, subchondral condensation, fat metaplasia, erosions and ankylosis) on MRIs of the sacroiliac joint of healthy individuals and patients with spondyloarthritis.

Methods: This is a retrospective study conducted at the University Hospital of Besançon including 200 patients, each having received an MRI of the sacroiliac joints in coronal section and in T1 and Semicoronal short tau inversion recovery sequences. Two experienced readers evaluated the whole set of images to detect erosions, subchondral condensation, fat metaplasia, BME and ankylosis according to the definitions established by the Assessment of SpondyloArthritis MRI working group. We subdivided a sacroiliac joint into three segments, upper, medium and lower along the crano-caudal axis. Within the middle segment, we retained 3 portions: anterior, intermediate, posterior along the ventro-dorsal axis. Overall, one sacroiliac joint contained five quadrants on the iliac side and five quadrants on the sacral side.

Results: Collected MRI of 200 patients (62% female), 96 patients had spondyloarthritis (mean age 37.4±11.8 years, 48% HLA-B27+), 104 subjects were unaffected by the disease (mean age 39.9±11.6 years, 11% HLA-B27+). Of the 96 spondyloarthritis patients, 62 (65%) had inflammatory buttock pain compared to 26 (25%) in the group without spondyloarthritis. BME was seen in 62 (65%) patients with spondyloarthritis mainly in the iliac quadrant of the intermediate middle segment and in 21 (20%) patients without spondyloarthritis predominantly in the ante-ro-middle quadrant. There were equal BME in women and men with spondyloarthritis. Subchondral condensation occurred in 45% of patients without spondyloarthritis, mostly in the ante-ro-middle quadrant and in 36% of patients with spondyloarthritis. Fat metaplasia was present in 35% of spondyloarthritis patients and in 23% of control patients. Erosions were seen in 31% of healthy patients and in 61% of patients with spondyloarthritis.

Conclusion: In this large retrospective cohort, we observed a significant frequency of inflammatory but also structural lesions on MRIs of sacroiliac joints from healthy patients, which could lead to the misdiagnosis of spondyloarthritis. Fine identification of the location of these lesions is crucial to avoid erroneous diagnosis.

References:

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NAILFOLD VIDEOCAPILLAROSCOPY REPORTING IN CLINICAL RESEARCH: INTERNATIONAL DELPHI BASED CONSENSUS

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Background: Nailfold capillaroscopy (NVC), a non-invasive technique to assess microcirculation, is increasingly being incorporated into rheumatology routine clinical practice. Currently, the degree of description of NVC methods varies amongst research studies, making interpretation and comparison between studies challenging. In this field, an unmet need is the standardization of items to be reported in research studies using NVC.

Objectives: To perform a Delphi consensus on minimum reporting standards in methodology for clinical research, based on the items derived from a systematic review focused on this topic.

Methods: The systematic review of the literature on NVC methodology relating to rheumatic diseases was performed according to PRISMA guidelines (PROSPERO CRD42018104660) to July 22nd 2018 using MEDLINE, Embase, Scopus. Then, a three-step web-based Delphi consensus was performed in between members of the EULAR study group on microcirculation in rheumatic diseases and the Scleroderma Clinical Trials Consortium. Participants were asked to rate each item from 1 (not appropriate) to 9 (completely appropriate).

Results: In total, 3491 references were retrieved in the initial search strategy, 2862 were excluded as duplicates or after title/abstract screening. 632 articles were retrieved for full paper review of which 319 fulfilled the inclusion criteria. Regarding patient preparation before the exam, data were scarce: 38% reported acclimatization, 5% to avoid caffeine and smoking, 3% to wash hands and 2% to avoid manucure. Concerning the device description: 90% reported type of instrument, 77% brand/model, 72% magnification, 46% oil use, 40% room temperature and 35% software for image analysis. As regards to examination details: 76% which fingers examined, 75% number of fingers examined, 15% operator experience, 13% reason for finger exclusion, 9% number of images, 8% quality check of the images and 3% time spent for the exam. Then, a three-round Delphi consensus on the selected items was completed by 80 participants internationally, from 31 countries located in Australia, Asia, Europe, North and South America. Some items reached the agreement at the second round (85 participants), and other items were suggested as important to consider in a future research agenda (e.g. temperature for acclimatization, the impact of smoking, allergies at the application of the oil to the nailbed, significance of pericapillary edema, methods of reporting hemorrhages, ramified and giant capillaries). The final agreement results are reported below.
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THU0529

CAPILLAROSCOPIC ALTERATIONS IN PATIENTS WITH IDIOPATHIC INFLAMMATORY MYOPATHIES

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Background: Nailfold capillaroscopy (NFC) is a useful, noninvasive, widely available diagnostic tool in rheumatology practice. We commonly use it to describe patterns of abnormalities in systemic sclerosis however we have enough data which proves NFC usefulness for monitoring idiopathic inflammatory myopathies (IIM) considering it as diagnostic tool, monitoring of disease activity and treatment efficiency. Despite evident clinical relevance of NFC in IIM patients we still do not have clear capillaroscopic images for IIM definition.

Objectives: That's why, the goal of our research was aimed to analyze capillaroscopic peculiarities among IIM patients and find possible associations with clinical and activity data.

Methods: 69 patients with IIM were examined and 47 IIM patients with capillaroscopic alterations were included in the study, 26 patients with dermatomyositis (DM) and 21 patients with polymyositis (PM) according to the Targoff Criteria (1997). NFC we performed using Dino-Lite CapillaryScope with 200 magnification. We assessed nailfold capillary density (NCD), presence of microhemorrhages, giant and dilated capillaries, scleroderma patterns (defined as an early, active or late pattern) and neovascular pattern (defined as an active and late sclerodermatous patterns). To assess disease activity we use Manual Muscle Testing 8 (MMT8), Health Assessment Questionnaire (HAQ), Myositis Disease Activity Assessment Tool (MDAAT), Cutaneous Dermatomyositis Disease Area and Severity Index (CDAI), physician’s VAS, patient’s VAS, serum muscle enzymes levels. We divided patients into 4 groups: 1st group – 17 DM patients with active disease (8 of them with newly onset disease), 2nd group – 10 PM patients with active disease (5 of them with newly onset disease) and 4th group included 10 PM patients with inactive disease.

Results: The most common finding was low NCD, 70% of all patients had NCD less than 6 per 1 mm. NCD for the 1st group was 4.8±1.2, 2nd group – 6.0±1.0, 3rd group – 5.8±1.1, 4th group – 9.2±2.1 (F(3,6)=27, p=0,001). Hemorrhages were significantly more common among DM patients and active disease and were observed among 47,1% (p=0,036, χ²=8,574) with no significant difference with regard to the disease onset. Analyzing scleroderma patterns, among 1st group of patients – 176% had early, 47,1% – active, 35,3% – late pattern, in the 2nd group – 66,7% had early pattern, in the 3rd group – 27,3% patients with early and 18,9% with active pattern and in the 4th group – 50% of patients presented with early pattern (p=0,001, χ²=31,87). Neovascular pattern was found significantly more often among patients with active DM (p=0,001) with no regard to the disease onset. No statistically significant difference in giant and ramified capillaries distribution was found.

Conclusion: On the basis of the available literature the description of NFC methods was highly heterogeneous and individual published studies differed markedly. These practical suggestions developed using a Delphi process among international participants provide a guidance to improve and to standardize the NFC methodology in future clinical research studies.

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THU0530

HIGHLY-SENSITIVE CARDIAC TROPONIN I AND BETA-2-GLYCOPROTEIN-I IGA ANTIBODIES INFORM THE UTILITY OF SCREENING AND FOLLOW-UP NON-INVASIVE CORONARY ATHEROSCLEROSIS EVALUATION AND OPTIMIZE CARDIOVASCULAR RISK ASSESSMENT IN RHEUMATOID ARTHRITIS

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Background: Occult coronary atherosclerosis burden predicts mid-term cardiovascular disease (CVD) events in rheumatoid arthritis (RA) above and beyond Framingham D’Agostino cardiac risk score (FRS-DA). Highly-sensitive cardiac troponin I (hs-cTnI) levels in blood associate with coronary plaque burden and event risk in RA. Moreover, Iga antibodies against beta2-glycoprotein-1 (a-b2GPI-IgA)- an atherosclerotic plaque antigen- in RA promote coronary plaque progression and moderate the effect of inflammation on CVD events. It is currently unclear when to recommend a screening, non-invasive coronary atherosclerosis evaluation in asymptomatic RA patients and whether such an assessment should be repeated.

Objectives: To explore whether either biomarker alone or their combination improved prediction of plaque presence on an initial coronary CT angiogram (CCTA) beyond FRS-DA score; to evaluate whether either biomarker predicted progression to extensive or obstructive plaque on a follow-up evaluation.

Methods: One hundred fifty RA patients underwent a baseline CCTA; 101 had repeat evaluation within 6.9±0.3 years. Hs-cTnI and a-b2GPI-IgA were assessed at baseline; the latter were confirmed 12 weeks later, if positive. Lesions rendering progression to extensive or obstructive plaque on a follow-up evaluation.

Conclusion: According to our results, we can admit that the most common capillaroscopic finding was decreased NCD, which were significantly lower among patients with active DM, the same as microhemorrhages and neovascular sclerodermatous pattern. This data suggests that NCD, microhemorrhages and neovascular sclerodermatous pattern could be consider as biomarkers of DM activity but not PM, therefore more detailed research with larger numbers of patients are required.

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THU0531

ASSESSMENT IN RHEUMATOID ARTHRITIS

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Background: RA is a chronic, inflammatory, autoimmune disease which is characterized by the presence of autoantibodies against the homologue of an atherosclerotic plaque antigen: beta2-glycoprotein-1 (a-b2GPI), a pro-inflammatory cytokine and a determinant of inflammation status. Atherosclerosis (AS) is a chronic inflammatory disorder which is characterized by the presence of atherosclerotic plaques which are mainly composed of macrophages, smooth muscle cells and extracellular matrix. The inflammatory process results in the formation of atheromatous plaques, which if not treated, may lead to the formation of atherosclerotic plaques or plaque rupture and subsequent cardiovascular events. In RA patients, the presence of atherosclerotic plaques has been associated with increased cardiovascular risk. Therefore, the assessment of atherosclerotic plaque burden is important in RA patients.

Objectives: To assess the association between a-b2GPI-IgA and cardiovascular risk factors in RA patients. To evaluate the potential of a-b2GPI-IgA as a predictor of cardiovascular risk.

Methods: A total of 100 RA patients were recruited, including 50 patients with early RA (≤1 year of disease duration) and 50 patients with established RA (>1 year of disease duration). A-b2GPI-IgA levels were assessed by an immunoprecipitation assay. The association between a-b2GPI-IgA levels and cardiovascular risk factors was evaluated using logistic regression analysis.

Conclusion: The results of this study suggest that a-b2GPI-IgA levels are associated with cardiovascular risk factors, including hypertension, hyperlipidemia, and diabetes. These findings support the potential of a-b2GPI-IgA as a predictor of cardiovascular risk in RA patients. Further research is needed to validate these findings and to evaluate the potential of a-b2GPI-IgA as a prognostic marker.

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THU0532

HIGHLY-SENSITIVE CARDIAC TROPONIN I AND BETA-2-GLYCOPROTEIN-I IGA ANTIBODIES INFORM THE UTILITY OF SCREENING AND FOLLOW-UP NON-INVASIVE CORONARY ATHEROSCLEROSIS EVALUATION AND OPTIMIZE CARDIOVASCULAR RISK ASSESSMENT IN RHEUMATOID ARTHRITIS

G. Karpouzas1, S. Ormseth1, E. Hernandez2, M. Buddov1. 1Lundquist Institute of Biomedical Innovation, Torrance, United States of America

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Objectives: To explore whether either biomarker alone or their combination improved prediction of plaque presence on an initial coronary CT angiogram (CCTA) beyond FRS-DA score; to evaluate whether either biomarker predicted progression to extensive or obstructive plaque on a follow-up evaluation.

Methods: One hundred fifty RA patients underwent a baseline CCTA; 101 had repeat evaluation within 6.9±0.3 years. Hs-cTnI and a-b2GPI-IgA were assessed at baseline; the latter were confirmed 12 weeks later, if positive. Lesions rendering greater than a 50% luminal stenosis were considered obstructive. Extensive plaque was defined as ≥5 coronary segments with plaque, or stenosis score≥5, or coronary artery calcium score (CAC)≥100. The diagnostic accuracy of FRS-DA alone vs. with hs-cTnI or a-b2GPI-IgA individually or combined for plaque or CAC at baseline was evaluated as area under the curve (AUC). Improvement