OP0310-HPR METABOLIC ABNORMALITIES IN MEXICAN PATIENTS WITH RHEUMATIC DISEASES

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Background: Nutritional status plays an essential role in the etiopathogenesis of rheumatic diseases either as a triggering factor or as a contributor in the progression of disease activity, comorbidities and ineffective therapeutic response.¹ An increased Body Mass Index (BMI) and a low lean muscle mass (LMM) have been associated to a worse clinical prognosis in rheumatic diseases.¹

Objectives: To describe the nutritional status and alterations in a cohort of patients with rheumatic diseases.

Methods: 658 mexican rheumatic patients from a rheumatology public center were included. Anthropometrical measurements were assessed using bio-electrical impedance analysis (BIA) Tanita. including weight, height, BMI, Body Fat Percentage and Body Fat Mass (FM), Visceral Fat (VF), MM, Total Body Water (TBW) and Bone Mass (BM) which were classified according to validated parameters as normal and abnormal.

Results: A total of 658 patients were evaluated, 368 (55.92%) had Rheumatoid Arthritis. Table 1. The different diagnosis and anthropometric measures for each pathology are listed in Graphic 1.

More than half of the patients (68.05%) presented an increased BMI and 85.56% a decreased MM. **Graphic 2.**

Conclusion: This study showed that sarcopenic obesity, defined as low MM with an increased BMI¹, is a common disorder among rheumatic patients, found in more than half of our studied population. Since nutrition is a modifiable factor, important investigation in the detection and approach of metabolic abnormalities should be done.

References:

- [1] Stavropoulos-Kalinoglou, A., Metsios, G. S., Panoulas, V. F., Nevill, A. M., Jamurtas, A. Z., Koutedakis, Y., & Kitas, G. D. (2009). Underweight and obese states both associate with worse disease activity and physical function in patients with established rheumatoid arthritis. *Clinical rheumatology*, 28(4), 439-444.

Graphic 1. RA: Rheumatoid Arthritis, LES: Systemic Lupus erythematosus, OA: Osteoarthritis, FM: Fibromyalgia, EA: Spondyloarthropathies, SS: Sjögren's Syndrome, SSc: Scleroderma. A BMI >25kg/m2 was classified as overweight and > 30kg/m2 obesity, BFM >35% in women and 24% in men was classified as high, as well as VF >12%; a low LMM was <68% in women and <75% in men, BM <2.4 was considered low.

Table 1. Bioelectric impedance and anthropometric results in Rheumatic diseases

	RA	LES	OA	FM	EA	SS	SSc
N	368	106	69	38	32	24	21
Female	335 (91)	98 (92.5)	63 (91.3)	38 (100)	19 (59.4)	23 (95.8)	21 (100)
Hight	1.56 (0.07)	1.58 (0.07)	1.56 (0.09)	1.57 (0.06)	1.62 (0.1)	1.57 (0.06)	1.57 (0.06)
Age	51.71 (12.29)	37.61 (12.57)	58.67 (10.27)	48 (11.43)	44.1 (14.93)	55.79 (12.90)	48.33 (9.51)
Weight (kg)	70.02(14.94)	69.1 (16.77)	70.34 (16.63)	71.82 (12.56)	71.43 (16.55)	70.82 (15.53)	62.9 (18.18)
Total fat (%)	35.99 (8.60)	32.78 (10.43)	37.11 (7.70)	38.06 (6.48)	30.38 (12.4)	38.02 (9.09)	31.98 (8.68)
Total fat (kg)	26.06 (10.81)	24.41 (12.31)	27.13 (11.16)	28.08 (9.47)	22.97 (12.56)	28.12 (12.12)	21.28 (10.52)
Total body water (%)	44.71 (6.06)	47.41 (7.41)	43.45 (4.31)	43.21 (3.82)	49.59 (10.47)	42.99 (5.74)	46.87 (4.99)
Visceral fat	8.69 (3.68)	6.33 (4.37)	9.71 (3.90)	8.32 (3.06)	8.28 (4.85)	9.21 (4.32)	7.27 (4.19)
Lean mass (%)	60.75 (8.18)	63.71 (9.98)	59.67 (7.75)	58.82 (6.14)	65.98 (11.77)	58.47 (9.21)	66.3 (11.38)
Lean mass (kg)	41.68 (6.13)	42.86 (6.70)	41.14 (6.98)	41.54 (3.48)	45.92 (8.74)	40.11 (4.74)	40.13 (6.92)
Bone mass	2.38 (0.79)	2.69 (1.40)	2.64 (2.42)	2.32 (0.5)	2.79 (1.19)	2.14 (0.21)	2.48 (1.16)
BMI	28.69 (6.15)	27.79 (6.52)	28.72 (5.5)	29.36 (5.19)	27.41 (6.55)	28.6 (5.98)	25.58 (7.40)

RA: Rheumatoid arthritis, SLE: Systemic Lupus Erythematosus, OA: Osteoarthritis, FM: Fibromyalgia, EA: Spondyloarthropathies, SS: Sjogren Syndrome, SSc: Scleroderma

Graphic 2. Metabolic abnormalities in rheumatic diseases. BMI= Body Mass Index; BFM= Body Fat Mass; VF= Visceral Fat; LMM= Lean Muscle Mass; BM= Bone Mass

Disclosure of Interests: None declared

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OP0311 DETECTION OF SUBCLINICAL SKIN MANIFESTATION IN PATIENTS WITH PSORIASIS AND PSORIATIC ARTHRITIS BY FLUORESCENCE OPTICAL IMAGING

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Background: Fluorescence optical imaging (FOI) as new imaging technique enables visualization of an impaired microcirculation in both hands caused by joint inflammation. A detection of psoriatic skin inflammation which may also signify an altered vessel composition via FOI has not yet been examined.

Objectives: The aim of the present study was to investigate potential subclinical skin inflammation in both hands of psoriasis (Pso) and psoriatic arthritis (PsA) patients in comparison to rheumatoid arthritis (RA) and healthy individuals by FOI, and to correlate these findings with cardiovascular risk factors or events, since a connection to Psoriasis skin involvement is assumed.

Methods: FOI scans of patients with Pso and PsA as well as RA and healthy subjects were analyzed retrospectively to detect subclinical skin enhancement in both hands that did not clinically show overt psoriasis skin changes. According to the 'fluorescence optical imaging activity score' (FOIAS) (1) used for evaluation of joint enhancement so far, a standardized definition was set in order to describe the degree of skin enhancement via a semi-quantitative (0-3) score (see Figure). The score was applied for the first third of the FOI exam sequence (0-120 sec.). To be scored as potential subdermal skin enhancement, it had to be localized on the back of the hands without relationship to an underlying joint or blood vessel since the ICG enhancement was then most likely localized in the area of the (sub)dermis. Using this analysis method, we further characterized the patterns and sorted the scans into the groups PsA/Pso, RA and healthy controls to compare these with the final physician's diagnosis. Furthermore, cardiovascular risk factors (e.g. obesity, smoking status, hypertension) were collected and correlated to imaging findings.

Results: We included FOI scans of patients with PsA/Pso (n=80), patients with RA (n=78) and healthy controls (n=25). Significantly more PsA/Pso patients showed subclinical skin enhancement on the back of their hands than RA and healthy individuals (PsA/Pso: 72.5%, RA: 20.5%, healthy controls: 28.0%; $p<0.001$). By using the pattern of skin enhancement, it was possible to categorize 58 of 80 patients correctly as PsA/Pso (72.5%), 60 out of 78 as RA (76.9%) and seventeen out of 25 as healthy controls (68.0%; p -value <0.001). We could show an influence of the body weight (kg) ($p<0.001$, OR 1.04, CI 1.02; 1.06) on the FOI results; no further correlation with cardiovascular risk factors was detected.

Conclusion: We were able to proof our primary hypothesis that it is possible to visualize subclinical subdermal skin inflammation in PsA/Pso patients using FOI. Furthermore, we were also able to categorize PsA/Pso and RA patients correctly by using our newly developed method. Although we could not establish a correlation between subdermal skin enhancement and cardiovascular risk factors, we demonstrated an important influence of the body weight on our FOI results. FOI may be a helpful novel tool to study microcirculation in rheumatic diseases with skin involvement.

References:

- [1] Werner SG, et al. Inflammation assessment in patients with arthritis using a novel in vivo fluorescence optical imaging technology. *Ann Rheum Dis*. 2012;71(4):504-10.

Figure. Left picture: The enhancement is mostly yellow on green ground classified as grade 1. Middle picture: The enhancement is red with minimal white signals classified as grade 2. Right picture: The enhancement in the marked area shows more white than red signals which presents grade 3.

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OP0312

THE IMPACT OF AN ULTRASOUND ATLAS FOR SCORING SALIVARY GLANDS IN PRIMARY SJÖGREN'S SYNDROME: A RELIABILITY EXERCISE

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Background: Salivary gland ultrasound (SGUS) may have the potential of facilitating diagnosis and therapy monitoring of salivary gland disease in patients with primary Sjögren's syndrome (pSS). A novel consensus based OMERACT SGUS scoring system for the parotid and submandibular glands has recently been developed.(1)

Objectives: To assess the reliability of 3 readers using the written definition of the scoring system provided by the OMERACT group and subsequent the impact of a SGUS-atlas based on the OMERACT SGUS scoring system.

Methods: 3 sonographers with 6 months to 10 years US experience performed a US exercise of 30 SGUS images of patients with SS. 16 images were of the submandibular gland (SMG) and 14 images of the parotid gland (PG) ranging from normal to varying degrees of abnormalities. The images were scored using the US scoring system provided by the OMERACT-group and subsequently using a SGUS atlas made for the study consisting of 4 images of every grade 0-3 of both the SMG and the PG. The readings were performed over 4 rounds: the first reading without using the atlas and second reading using the atlas 1 week later. The 30 images were scrambled by a physician not included in the readings and a third and fourth reading were performed without and with the atlas respectively – with 1 week in between. Inter- and intra-reader reliability were calculated by kappa-tests.

Results: Light weighted Kappa for intra- and inter-reliability was determined for each reading. The results of the intra-reader reliability was ranging from moderate to almost perfect with improvement in the 2nd round of readings and

with use of the atlas. The inter-reader reliability was moderate and better in the 2nd round of readings. Readings improved with the atlas. Details are shown in table 1.

Table 1

Intrareader reliability Weighted Kappa:	Weighted Kappa, reader 1-3
Reading 1 without atlas vs. reading 1 with atlas	0.93, 0.85, 0.80
Reading 2 without atlas vs. reading 2 with atlas	0.78, 0.93, 0.78
Reading 1 without atlas vs. reading 2 without atlas	0.78, 1.00, 0.58
Reading 1 with atlas vs. reading 2 with atlas	0.93, 0.93, 0.86
Interreader reliability Weighted Kappa:	Weighted Kappa: mean (min – max)
Reading 1 without atlas	0.50 (0.33 – 0.72)
Reading 1 with atlas	0.55 (0.39 – 0.86)
Reading 2 without atlas	0.55 (0.33 – 0.93)
Reading 2 with atlas	0.60 (0.40 – 0.93)

Conclusion: The results of the inter- and intra-reliability showed a moderate to almost perfect agreement respectively, of scoring SGUS in patients with pSS and especially in the 2nd round of readings indicating that training and the SGUS atlas increased the reliability.

References:

- [1] Jousse-Joulin S, D'Agostino MA, Nicolas C, Naredo E, Ohnrdorf S, Backhaus M, et al. Video clip assessment of a salivary gland ultrasound scoring system in Sjogren's syndrome using consensual definitions: an OMERACT ultrasound working group reliability exercise. *Annals of the rheumatic diseases*. 2019;78(7):967-73.

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Fractures, more than bone alone: the role of sarcopenia

OP0313

THERAPEUTIC APPROACHES TO OSTEOSARCOPENIA: DENOSUMAB EFFECT ON FALLS RISK, PHYSICAL PERFORMANCE AND WALKING SPEED

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Background: There is a strong association between osteoporosis and skeletal muscle dysfunction. Heparan-sulfate proteoglycans are abundant in skeletal muscles and may represent a target for RANKL inhibitor. It was noted that patients who completed their planned denosumab therapy course (5-years) started to sustain falls.

Objectives: To assess the effect of Denosumab on falls risk, physical performance, grip strength and gait speed and whether there is a relation with bone mineral density.

Methods: 127 osteoporotic patients treated with denosumab were assessed prior to starting denosumab therapy for: baseline BMD using DXA scan, blood test for osteoporosis bone profile, self-reported falls risk using (FRAS score [1]), fracture risk using FRAX, handgrip strength using a calibrated dynamometer (the best of three trials of the dynamometer testing was recorded), the patient's physical performance assessed by testing for: Short Physical Performance Battery (SPPB), Timed Up and Go (TUG), and the 4 Meter Walk Gait Speed. Same measures were assessed again after completing 5-years of denosumab therapy. Comparison groups included 112 patients diagnosed to have osteoporosis and treated with zoledronate (Zol), once yearly IV injection, for 3-years; and 134 patients treated with once weekly oral alendronate (Aln) 70mg for 5-years. The patients were assessed for the same parameters as in the denosumab therapy. All the measures were reassessed 1-year after stopping the osteoporosis therapy.