THU0156 CLINICAL ASSESSMENT VERSUS ULTRASONOGRAPHY IN PATIENTS WITH RHEUMATOID ARTHRITIS TREATED WITH BIOLOGICAL AGENTS - THE IMPACT OF CONCOMITANT FIBROMYALGIA

M.M. Tamas[1], L.-J. Ghib[1], C.I. Bondor[2], I. Felea[3], L. Damian[3], I. Filipescu[1], A. Mociran[3], S.-P. Simon[1], L. Muntean[1], S. Rednic[1]. *[1]Rheumatology; [2]Department of Medical Informatics and Biostatistics, "Iuliu Hatieganu" University of Medicine and Pharmacy; [3]Rheumatology, Emergency County Clinical Hospital, Cluj Napoca, Romania*

Background: Concomitant fibromyalgia (FM) may increase subjective components of the disease activity scores (DAS) in rheumatoid arthritis (RA), thus leading to an improper assessment of treatment response. Ultrasonography (US) is currently used in clinical practice as an objective measure of the disease activity. The US7 German score was demonstrated to be sensitive to change, reflecting the therapeutic response in RA patients [1].
Objectives: To evaluate clinical and US parameters in RA patients with or without concomitant FM, undergoing biological therapy.
Methods: RA patients treated with various biological agents who presented in our Department of Rheumatology were consecutively enrolled. Patients underwent clinical and laboratory examinations. US was performed by an experienced sonographer, blinded to clinical evaluation. Synovitis and synovial/tenosynovial vascularity were scored semiquantitatively (grade 0–3) by gray-scale (GS) and power Doppler (PD) US. Tenosynovitis (TS) and erosions were scored for presence [1].
Patients were divided in two groups according to the difference between tender joint count (TJC) and swollen joint count (SJC): ≥7 RA-FM group, <7 RA-nonFM group, representing the "joint count" criteria for FM, after the study of Pollard *et al.* [2].
Results: Thirty-nine patients were included, 77% women, mean age 55.2±11.3 years, mean disease duration 15.25±9.4 years. Nine out of 39 (23%) patients were classified as having associated FM. Disease duration and treatment were comparable between groups.
Significantly higher values for TJC, patient global assessment (PGA), DAS 28 were found in the RA-FM group, with no differences for SJC or inflammatory markers (ESR, CRP). GS and PD-US7 scores were similar between groups (Table 1).

Table 1. Clinical and US findings in RA-nonFM and RA-FM groups

	RA-nonFM (n=30)	RA-FM (n=9)	*P* value
PGA (mm)	41.33 (18.28)	58.88 (17.63)	<0.001
TJC	3 (0–10)	12 (9–17)	<0.001
SJC	2 (0–7)	1 (0–6)	0.54
ESR (mm/h)	22.26 (18.42)	27.33 (16.87)	0.21
CRP (mg/l)	8.46 (17.84)	8.67 (9.11)	0.66
DAS28 CRP	3.33 (0.98)	5.13 (1.18)	0.015
GS Synovitis US7 score	3.80 (4.37)	2.67 (1.66)	0.96
PD Synovitis US7 score	1.67 (2.90)	1.22 (1.20)	0.59
Erosions US7 score	3.77 (2.75)	4.89 (2.85)	0.29
GS TS US7 score	0.30 (0.84)	0.44 (0.73)	0.31
PD TS US7 score	0.20 (1.10)	0.33 (0.71)	0.08

In the RA non-FM, but not in the RA-FM group, GS and PD-US7 correlated with SJC (r=0.44, *p*=0.015 – GS synovitis, r=0.47, *p*=0.008 – PD synovitis; r=0.57, *p*=0.001 – GS TS; r=0.46, *p*=0.011 – PD TS) and PD synovitis negatively correlated with the "joint count" criteria (r=-0.44, *p*=0.015).
Conclusions: Concomitant FM in RA patients undergoing biological therapy lead to higher DAS28 scores, but not to synovial inflammation on US. US-PD correlates with clinically detected synovitis in the non-FM group. US is expected to modify treatment decision and to prevent RA mistreatment especially in RA-FM patients.
References:
[1] Backhaus M, et al. Evaluation of a novel 7-joint ultrasound score in daily rheumatologic practice: a pilot project. Arthritis Rheum. 2009;61(9):1194–201.
[2] Pollard LC, et al. Fibromyalgic rheumatoid arthritis and disease assessment. Rheumatology (Oxford). 2010;49(5):924–928.
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THU0157 RELATIONSHIP OF MATRIX METALLOPROTEASE 3 TITER AND SARCOPENIA IN PATIENTS WITH RHEUMATOID ARTHRITIS: DATA FROM THE CHIKARA STUDY

M. Tada, Y. Yamada, K. Mandai, N. Hidaka. *Orthopaedic Surgery, Osaka City General Hospital, Osaka, Japan*

Background: Patients with rheumatoid arthritis (RA) show a lower muscle mass[1] and higher prevalence of sarcopenia than healthy individuals. A prospective observational study (CHIKARA study, registration number: UMIN000023744) was started to clarify the influence of changes in disease activity for sarcopenia.
Objectives: We investigated the relationship between sarcopenia and disease activity at baseline in patients with RA.
Methods: We analyzed baseline data from the CHIKARA study (Correlation research of sarcopenia, skeletal muscle and disease activity in rheumatoid arthritis). Sarcopenia was diagnosed using the criteria of the Asia Working Group on Sarcopenia[2]. Muscle mass, body fat mass, total body water, bone mass, and basal metabolic rate were measured using a body composition analyzer (MC-780A; TANITA, Tokyo, Japan). We investigated correlations between sarcopenia and disease activity (DAS28-ESR, SDAI, physical function (HAQ), and laboratory data using uni- and multivariate analyses.
Results: Participants comprised 100 patients with RA (females, 78%; mean age, 66.1 years). Mean disease duration was 5.5 years, DAS28-ESR was 3.55, and the percentage of subjects with sarcopenia was 28%. Table 1 shows risk factors for sarcopenia. Sarcopenia correlated with weight, body mass index (BMI), body fat mass, muscle mass, basal metabolic rate, Steinbrocker stage, CRP bone mass, and matrix metalloprotease (MMP)-3 on univariate analysis. Glucocorticoid dosage, rheumatoid factor, and anti-CCP antibody showed no correlation with sarcopenia. BMI, body fat mass, and MMP-3 were identified as independent risk factors on multivariate analysis. MMP-3 over 90.7 ng/ml was a risk factor for sarcopenia by ROC curve analysis (odds ratio, 3.09; p=0.023).

Table 1. Risk factors for sarcopenia in patients with RA

	Univariate		Multivariate		
	R	*P*	Odds ratio	95% CI	*P*
Weight	-0.421	<0.001	–	–	–
BMI	-0.490	<0.001	0.307	0.185–0.509	<0.001
Body fat mass	-0.219	0.002	1.318	1.124–1.546	0.001
Muscle mass	-0.325	0.001	–	–	–
Basal metabolic rate	-0.419	<0.001	–	–	–
Steinbrocker stage	0.206	0.039	–	–	–
CRP	0.201	0.045	–	–	–
Bone mass	-0.374	<0.001	–	–	–
MMP-3	0.238	0.017	1.012	1.003–0.021	0.01

Conclusions: The percentage of sarcopenia was 28% in patients with RA. Low BMI, high body fat mass, and high MMP-3 represented independent risk factors for sarcopenia. A relationship between MMP-3 and sarcopenia was indicated by this study.
References:
[1] Inui K., Koike T., Tada M., et al. Sarcopenia is apparent in patients with rheumatoid arthritis, especially those with biologics -TOMORROW study-. EULAR 2015 abstract (AB0359).
[2] Chen Lk., Liu LK., Assantachai P., et al. Sarcopenia in Asia: consensus report of the Asian Working Group for Sarcopenia. J Am Med Dir Assoc. 2014; 15: 95–101.
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THU0158 IMMUNE RESPONSE EFFICIENCY AFTER VACCINATION IN RA AND SPA PATIENTS TREATED WITH BIOLOGICS AND IMMUNOSUPPRESSIVE AGENTS: A SYSTEMATIC LITERATURE REVIEW

M. Tissier[1], A. Molto[1], S. Kolta[1], O. Fogel[1], M. Dougados[1], J. Morel[2], C. Miceli-Richard[1]. *[1]Hopital Cochin Paris, Paris; [2]CHU Montpellier, Montpellier, France*

Background: One of the most effective strategies to prevent infections is vaccination, especially in patients treated with biologics and immunosuppressive (IS) agents. Nevertheless, the effectiveness of the resulting immune response in these patients has been questioned.
Objectives: To perform a systematic literature review aiming to assess evidence available regarding immune response efficiency (IRE) and the ideal schedule for vaccination in RA and SpA patients treated with Methotrexate (MTX), TNF inhibitors (TNFi), anti-CD20 (rituximab, RTX), anti-CTLA4 (abatacept, ABA) or anti-IL6 (tocilizumab, TCZ).
Methods: A systematic literature review was conducted by searching in PubMed all studies with the MeSH terms "[Rheumatoïd Arthritis" OR "Spondyloarthritis"] AND ["vaccination" OR "vaccines"] AND ["Methotrexate" OR "Abatacept" OR "Tocilizumab" OR "Rituximab" OR "Adalimumab" OR "Certolizumab" OR "Etanercept" OR "Golimumab" OR "Infliximab"], with no limitation regarding time of publication. Only studies evaluating the IRE were included. Case reports, general reviews and meta-analysis were excluded.
Results: After exclusion criteria, 35 studies (out of 60 studies retrieved) assessing IRE in RA or SpA patients were selected, under MTX (n=35), TNFi (n=18), RTX (n=8), ABA (n=4) or TCZ (n=5). The studied vaccines were mostly the trivalent seasonal Influenza (n=20), the anti-pneumococcal vaccine (n=16), and few studies regarding the tetanus toxoid vaccine (TTV) (n=2), Hepatitis A vaccine (n=1) and accidental revaccination against yellow fever (n=2). Most studies (32/35) evaluated the IRE using the antibody (Ab) titer. When studying the anti-pneumococcal and influenza vaccination, the primary outcome was mainly the seroresponse 3 to 6 weeks after vaccination (i.e. Ab ratio post/pre-vaccine) but some studies (15/35) also assessed the seroprotection rate (i.e. patients with an effective titer of protective Ab), and some (3/35) the effectiveness of seroresponse using the opsonization index rate.
Regarding the anti-pneumococcal and influenza vaccination, MTX, RTX, and ABA were reported to impair the immune response; neither TNFi nor TCZ were shown to decrease seroresponse.