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AB0291B

A COMPARISON OF THE JOINTS ULTRASONOGRAPHY IN THE PATIENTS WITH RHEUMATOID ARTHRITIS TREATED BY BIOLOGICAL AGENTS AND THE CORRESPONDING SYNOVIAL HISTOLOGICAL FINDINGS

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Background: In the treatment of Rheumatoid arthritis (RA), early diagnosis and early treatment with tight control have become increasingly important with the advent of biological therapy. Ultrasonography (US) of the various joints enables the real-time evaluation of synovial hypertrophy, effusion and bone erosion, Power Doppler (PD) ultrasound is able to identify both subclinical synovitis and early erosive disease.

Objectives: The objectives of this study were to investigate whether the image of US at the operated joint reflect synovium histological findings or clinical indicators, and to compare the results in the patient treated by non-biological agent (NonBio) and biological agent (Bio)

Methods: RA related orthopaedic surgery was performed at 1287 joints including 17 shoulders, 160 knees, 96 elbows, 378 wrists, 364 fingers, 38 ankles and 234 toes during the period between January 2011 and December 2018 at our rheumatic center. Preoperatively, ultrasound evaluations were performed and grade of PD signal was determined at the part with the highest signal. PD signal consists 4 grades from grade 0 to 3. The operations were performed within one week after the ultrasound evaluations. Rooney score of the synovium histology, DAS28-ESR (4), MMP-3, CRP were investigated. Rooney score represents the histologic features in the synovium of RA. It includes 6 features i.e. synovio-cytes hyperplasia, fibrosis, proliferating blood vessels, perivascular infiltrates of lymphocytes, focal aggregates of lymphocytes, diffuse infiltrates of lymphocytes. They were scored separately on a scale of 1-10. The treatments that the patients received included: biological agents (Bio) (n=389 30%), etanercept (ETN) (n= 102), tocilizumab (TCZ) (n=105), infliximab (IFX) (n=29), adalimumab (ADA) (n=28), certlizumab pegol (CZP) (n=12), golimumab (GLM) (n=56), and abatacept (ABT) (n=55), tofacitinib (TOF) (n=2).

Results: PD signal (0.97±0.88), DAS28 (3.23±1.13), CRP(0.5±1.25 mg/dL), MMP-3 (119.0±119.0 ng/mL) and Rooney score (23.5±7.7) in the patients treated with Bio were significantly lower than those (1.39±0.95, 3.66±1.07, 0.78±1.37 mg/dL, 146.3±150.0ng/dL, 28.5±9.26) in the patients treated with NonBio. Rooney score fibrosis (9.57±1.44) in patients treated with Bio was significantly higher than those (8.64±2.48) in patients treated by NonBio. Rooney score, synovio-cyte hyperplasia (1.16±1.26) and three items of lymphocyte (1.59±2.91, 1.68±2.54, 1.11±2.20) in patients treated with Bio were lower than those (1.72±1.30, 3.79±3.56, 3.73±3.53, 2.40±2.98) in patients treated with NonBio. TCZ, ADA, ABT and IFX had some significant differences for Rooney score and Rooney item score between the patients treated with NonBio.

Conclusion: The activity of RA synovitis at operated site was suppressed in patients treated with Bio. There were some differences in clinical data, histological score, PD signal and DAS28 among Bio.

Disclosure of Interests: None declared

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AB0291C

REMISSION IN RHEUMATOID ARTHRITIS: CONSIDERING NEW CUT-POINTS OF COMPOSITE DISEASE ACTIVITY INDICES ACCORDING TO THE ABSENCE OF SYNOVITIS BY ULTRASONOGRAPHY

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Background: Achieving the state of remission in RA according to currently available criteria does not entirely prevent patient from radiological progression. On the contrary, the presence of subclinical synovitis by means of ultrasonography (US) correlates with radiological progression.

Objectives: To establish cut-off values of composite disease activity indices (DAS28-CRP, DAS28-ESR, CDAI and SDAI) that adjust better to remission according to the absence of synovitis by US.

Methods: Observational, cross-sectional study that included 126 patients with diagnosis of RA who were in remission or low disease activity (DAS-ESR ≤3.2). For each patient we calculated the DAS28-ESR, DAS28-CRP, CDAI, SDAI. For US assessment we used the 12 joint simplified score. We considered the state of remission by US if synovial hypertrophy (SH) ≤1 and power Doppler (PD) signal= 0 in all joints. The cut-off values of the disease activity indices to define remission according to the proposed US definition of remission were determined by ROC curves.

Results: Patients had a median (ICR) DAS28-ESR of 2.32 (0.60), DAS28-CRP= 1.89 (0.55), CDAI= 3.56 (3.0) and SDAI= 3.0 (4.7). The sensitivity, specificity, positive and negative predictive value of each of the selected cut-off points for the DAS28-CRP, DAS28-ESR, CDAI and SDAI for the definition of remission are shown in the Table.

Conclusion: In this study we describe new cut points of the different composite disease activity indices for the definition of remission. These cut points improve the accuracy of the definition of remission. However, they differ scarcely from the reference values making its impact uncertain in the long term management of patients with RA. Longitudinal studies are, therefore, warranted in order to elucidate the performance of these new cut points.

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Cut-off values	Sensitivity% (IC95%)	Specificity% (IC95%)	PPV% (IC95%)	NPV% (IC95%)
Taking as reference SH definition of remission.				
DAS28-ESR	81 (70-88)	50 (37-63)	68 (58-77)	66 (51-78)
≤2.6	65 (54-75)	63 (56-73)	70 (58-80)	58 (45-69)
≤2.5				
DAS28-CRP	86 (76-92)	26 (16-39)	61 (51-70)	58 (39-76)
≤2.6	57 (45-68)	55 (41-68)	63 (51-74)	48 (36-61)
≤2.0				
CDAI	61 (50-72)	74 (61-84)	76 (64-85)	59 (47-70)
≤2.8	60 (48-70)	74 (61-84)	75 (63-85)	58 (46-69)
≤2.1				
SDAI	52 (40-63)	72 (59-82)	71 (58-82)	53 (42-64)
≤3.3	52 (41-64)	80 (68-89)	78 (64-88)	55 (44-66)
≤3.0				
Taking as reference the PD definition of remission.				
DAS28-ESR	71 (61-80)	43 (28-59)	76 (66-84)	37 (25-52)
≤2.6	58 (48-68)	60 (44-74)	79 (68-87)	36 (25-48)
≤2.5				
DAS28-CRP	80 (71-87)	17 (8-33)	72 (62-79)	25 (18-45)
≤2.2	64 (53-73)	56 (40-71)	79 (68-87)	38 (26-52)
≤1.96				
CDAI	55 (44-64)	47 (38-56)	85 (73-92)	38 (28-50)
≤2.8	53 (43-63)	74 (58-86)	84 (73-92)	38 (27-50)
≤2.15				
SDAI	46 (36-56)	71 (55-84)	81 (68-89)	34 (24-48)
≤3.3	46 (36-57)	82 (67-92)	87 (74-94)	33 (28-49)
≤3.0				

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AB0291D PREDICTORS OF NEW BONE EROSION IN RHEUMATOID ARTHRITIS PATIENTS RECEIVING CSMDARDS: ANALYSIS OF DATA FROM THE DRIVE AND DESIRABLE STUDIES

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Background: Suppression of joint destruction is an important target for the treatment of rheumatoid arthritis (RA). Most previous studies have proposed prediction models for joint destruction to detect the risk of rapid radiographic progression (change in mTSS ≥ 5). As joint destruction progresses irreversibly, even slight progression of joint destruction might impact the prognosis. Therefore, our study focused on the onset of new bone erosion in RA patients.

Objectives: To clarify predictors for new bone erosion in RA patients treated with csDMARDs.

Methods: Predictive factors were analyzed using data from the placebo groups of the DRIVE [1] and DESIRABLE [2] studies, which were 12-month, randomized, double-blind, phase 2 and 3 trials for evaluating the efficacy of denosumab in RA patients. New bone erosion was defined as change from baseline in erosion score (ES) ≥ 1.0 at 12 months, which was assessed as "progressed" by two readers. In addition to newly emerging erosion, new bone erosion also included enlargement of erosion size which is the result of new erosion at a site adjacent to an existing bone erosion. To evaluate predictors for new bone erosion, a logistic regression model was applied. Significant predictors (p value of <0.1) were selected from the univariate analysis and one variable from each correlated pair that showed significance was removed. Multivariate analyses were performed using the selected predictors.

Results: In a total of 306 patients, baseline DAS28-CRP (mean $\pm$ SD) was 3.58 $\pm$ 1.03. New bone erosion was observed in 90 patients (29.4%). In the univariate analysis, female sex, anti-CCP antibody positivity, rheumatoid factor (RF) positivity, tender joint count (TJC) ≥ 6 , CRP ≥ 0.3 mg/dL, erythrocyte sedimentation rate (ESR) ≥ 28 mm/h, and baseline ES ≥ 3 were identified as significant predictors for new bone erosion. RF and ESR were not included in the multivariate analysis because they were strongly correlated with anti-CCP antibody and CRP, respectively. In the multivariate analyses, female sex, anti-CCP antibody positivity, TJC ≥ 6 , CRP ≥ 0.3 mg/dL, and baseline ES ≥ 3 were identified as predictors for the development of new bone erosion.

Abstract AB0291D Table 1. Univariate and multivariate analyses for a change in ES ≥ 1.0

Variables			Univariate		Multivariate	
	Reference		Odds ratio	P value	Odds ratio	P value
Sex	Female	Male	1.78	0.089	1.85	0.097
Age	≥ 65 years	<65 years	0.79	0.423		
Duration of disease	≥ 3 years	<3 years	1.06	0.844		
Anti-CCP antibody	Positive	Negative	5.95	<0.001	4.01	<0.001
RF	Positive	Negative	2.67	<0.001		
Glucocorticoid use	Yes	No	0.99	0.963		
TJC	≥ 6	<6	1.66	0.047	1.70	0.060
Swollen joint count	≥ 10	<10	1.26	0.353		
CRP	≥ 0.3 mg/dL	<0.3 mg/dL	2.84	<0.001	2.02	0.013
ESR	≥ 28 mm/h	<28 mm/h	2.08	0.007		
Baseline ES	≥ 3	<3	3.32	<0.001	2.29	0.005
Study	DESIRABLE	DRIVE	1.16	0.602		

Conclusion: In RA patients whose disease activity was controlled on csDMARDs, positive anti-CCP antibody/RF status, elevated CRP/ESR levels, baseline ES ≥ 3 , TJC ≥ 6 and female sex were identified as predictors for new bone erosion.

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