Table 2.

Table 2.
The predictive value of baseline fatigue on PROMs, CDAs and clinical scores at follow-up, adjusted for age, sex, disease duration, baseline CRP and baseline sum score GS, and given as the standardized regression coefficient (β) and partial R square.

	1 month	2 months	3 months	6 months	12 months
Patient's global VAS	β=0.57, R=0.34**	β=0.53, R=0.29**	β=0.45, R=0.21**	β=0.50, R=0.26**	β=0.47, R=0.23**
Joint pain VAS	β=0.54, R=0.30**	β=0.46, R=0.22**	β=0.41, R=0.18**	β=0.47, R=0.22**	β=0.42, R=0.18**
HAQ	β=0.50, R=0.27**	β=0.35, R=0.10**	β=0.36, R=0.16**	β=0.43, R=0.21**	β=0.46, R=0.23**
SF36 Mental Health scale score	β=-0.45, R=0.30**	β=-0.45, R=0.20**	β=-0.46, R=0.21**	β=-0.52, R=0.26**	β=-0.47, R=0.22**
Pain catastrophizing	β=0.54, R=0.30**	β=0.52, R=0.26**	β=0.49, R=0.23**	β=0.40, R=0.15**	β=0.39, R=0.15**
DAS28	β=0.42, R=0.24**	β=0.36, R=0.16**	β=0.40, R=0.19**	β=0.38, R=0.18**	β=0.31, R=0.11**
CDAI	β=0.36, R=0.17**	β=0.32, R=0.12**	β=0.33, R=0.14**	β=0.33, R=0.13**	β=0.25, R=0.07**
SDAI	β=0.35, R=0.17**	β=0.30, R=0.12**	β=0.33, R=0.14**	β=0.33, R=0.13**	β=0.24, R=0.07**
28 tender joint count	β=0.41, R=0.18**	β=0.35, R=0.13**	β=0.39, R=0.15**	β=0.37, R=0.14**	β=0.27, R=0.07**
Assessor's global VAS	β=0.16, R=0.04*	NS	β=0.18, R=0.04*	β=0.20, R=0.06*	NS
28 swollen joint count	NS	NS	NS	NS	NS
Sum score PD	NS	NS	NS	NS	NS

NS=Not significant, *p<0.05, **p<0.001

Disclosure of Interests: Hilde Berner Hammer Grant/research support from: AbbVie, Pfizer and Roche, Paid instructor for: AbbVie, Pfizer, UCB, Novartis, Roche, Speakers bureau: AbbVie, Pfizer, UCB, Novartis, Roche, Brigitte Michelsen Grant/research support from: Unrestricted grant: Novartis, Consultant for: Novartis, UCB, Sella Aarrestad Provan Consultant for: Novartis, Speakers bureau: Lilly, Till Uhlig Consultant for: Grünenthal, Novartis, Speakers bureau: Grünenthal, Novartis, Tore K. Kvien Grant/research support from: AbbVie, BMS, MSD, Pfizer, Roche and UCB., Consultant for: AbbVie, Biogen, BMS, Boehringer Ingelheim, Celgene, Celltrion, Eli Lilly, Hospira, Merck-Serono, MSD, Novartis, Oktal, Orion Pharma, Pfizer, Roche, Sandoz, Sanofi, Mylan and UCB, Speakers bureau: AbbVie, Biogen, BMS, Boehringer Ingelheim, Celgene, Celltrion, Eli Lilly, Hospira, Merck-Serono, MSD, Novartis, Oktal, Orion Pharma, Pfizer, Roche, Sandoz, Sanofi and UCB

DOI: 10.1136/annrheumdis-2019-eular.1538

AB0258

POTENTIAL ROLE OF MEAN PLATELET VOLUME AND RED BLOOD CELL DISTRIBUTION WIDTH AS A BIOMARKER FOR CLINICAL AND SONOGRAPHIC ACTIVITY IN RHEUMATOID ARTHRITIS PATIENTS

Waleed Hassan¹, Mounir Elhanafi¹, Refaat Eltanawy¹, Rehab Shehab El-Din².
¹Benha University, Rheumatology and Rehabilitation, Benha, Egypt; ²Kafr elshikh general hospital, Rheumatology and Rehabilitation, Kafr elshikh, Egypt

Background: Red cell distribution width (RDW) reflects the variation in the circulating erythrocyte size (anisocytosis) that can increase in chronic inflammation due to ineffective erythropoiesis [1], while mean platelet volume (MPV) reveals the average size of platelets and may disclose its activation. Both are typically included in the complete blood count (CBC) and have been studied as a possible indicator of disease activity in many inflammatory conditions [2].

Objectives: This study aimed to assess the relationship between MPV and RDW levels and various rheumatoid arthritis (RA) clinical, laboratory and ultrasonographic disease activity parameters in patients with recent onset RA before and after initiation of therapy.

Methods: We assessed MPV and RDW in blood samples obtained from 60 recent onset RA patients and 30 healthy controls at baseline and 4 months after initiation therapy with non-biological disease modifying anti-rheumatic drugs (DMARDs). Disease activity was calculated using the 28 joint counts (DAS28) and musculoskeletal ultrasound examination (MSUS) was performed at baseline and after 4 months using a 12-joint score (bilateral elbow, wrist, 2nd metacarpophalangeal (MCP), 3rd MCP, knee, ankle) [2]; Erythrocyte sedimentation rate (ESR), C-reactive protein (CRP) levels, rheumatoid factor (RF) titre and anti-cyclic citrullinated peptide (anti-CCP) antibodies titre were measured and the health assessment questionnaire (HAQ) score was documented.

Results: Baseline RDW was significantly increased in RA (15.16 ± 3.63%) compared to its level in the healthy controls (12.16 ± 1.43%) (p<0.001). While, there was no significant difference in MPV between RA and control groups (10.92 ± 2.02 fl and 10.08 ± 0.88 fl respectively) (p=0.2). In RA patients, baseline RDW significantly correlated with CRP (r=0.39, p<0.05), DAS28 (r=0.47, p<0.05), grey scale (GS) (r=0.53, p<0.05) and power Doppler (PD) (r=0.56, p<0.001) synovitis scores. Also, RDW at 4 months follow up significantly correlated with the DAS28 (r =0.42, p<0.05), GS score (r=0.45, p<0.05). MPV showed no significant correlation with clinical, laboratory and ultrasonographic parameter of RA disease activity. Baseline RDW (p =0.02) was shown to be comparable to ESR (p =0.03) but less than CRP (p =0.001) at predicting PD synovitis score.

Conclusion: Rheumatoid arthritis patients have significantly increased RDW levels that remarkably correlated with clinical, laboratory and MSUS parameters of inflammations suggesting that it could be a useful marker to reflect RA disease activity. RDW could be a useful biomarker to predict treatment outcome in RA patient. In this regard, MPV had poor correlations.

REFERENCES

[1] Aksoy ŞN, Savaş E, Sucu M, Kisacik B, Kul S, Zengin O. Association between red cell distribution width and disease activity in patients with Behçet's disease. J Int Med Res. 2015 Dec;43(6):765-73.

[2] Tecer D, Sezgin M, Kanik A, İncel NA, Çimen ÖB, Biçer A, Şahin G. Can mean platelet volume and red blood cell distribution width show disease activity in rheumatoid arthritis?. Biomark Med. 2016 Sep; 10(9):967-74.

[3] Naredo E, Rodríguez M, Campos C, Rodríguez-Heredia JM, Medina JA, Giner E, et al. Validity, reproducibility, and responsiveness of a twelve-joint simplified power Doppler ultrasonographic assessment of joint inflammation in rheumatoid arthritis. Arthritis Rheum 2008;59(4):515–22.

Disclosure of Interests: None declared
DOI: 10.1136/annrheumdis-2019-eular.5809

AB0259

FOUR COMORBIDITY INDEXES AMONG PATIENTS WITH RHEUMATOID ARTHRITIS

Yun-Ju Huang¹, Chang-Fu Kuo¹, Jung-Sheng Chen², Shue-Fen Luo¹. ¹Division of Rheumatology, Allergy and Immunology, Taoyuan City, Taiwan, Republic of China; ²Center to big data analytics and statistics, Taoyuan City, Taiwan, Republic of China

Background: Previous studies have reported an increased risk of multiple comorbidities in people with RA therefore it is necessary to systematically quantify the comorbidity burden of these patients.[1] The comorbidity index is a tool developed under this concept and has multiple clinical and research uses.

Objectives: We compared four comorbidity indexes and mortality rate in patients with rheumatoid arthritis in Taiwan (Charlson Comorbidity Index (CCI), Elixhauser Comorbidity Index (ECI), Mutimorbidity index (MMI), Rheumatic Disease Comorbidity Index (RDCI))

Methods: All patients with rheumatoid arthritis diagnosed during 1998-2008 in Taiwan were identified using the Taiwan National Health Insurance Database and followed up to 31 Dec 2013. One-year mortality rate and 5-year mortality rate were compared using CCI, ECI, MMI and RDCI. High risk group for each index was defined as around the top 20% patients. A discrimination analysis was performed to compare the predictive ability of the model against the base model using the change of Harrell's c-statistics and the Akaike information criterion (AIC).

Results: Among 24767 patients with rheumatoid arthritis, median age at diagnosis is 51 years old and female is 79.2%. The one-year and 5-year mortality rate (per 1000 people) is 41 vs. 177 in CCI, 43 vs. 135 in ECI, 43 vs. 169 in MMI, 43 vs. 159 in RDCI. (Low risk group vs. high risk group) The one-year and 5-year mortality rates all are higher in the high risk group compared with low risk group using four comorbidity indexes. The 5-year mortality rate rises up rapidly both in low risk group and high risk group using four comorbidity indexes. The discrimination analysis showed MMI predicted one-year and 5-year mortality best. (Harrell's c-statistics 0.796 in one-year mortality and 0.802 in 5-year mortality) ECI, MMI and RDCI are all good at predicting mortality as well.

Conclusion: Our study showed mortality rate increased in patients after rheumatoid arthritis was diagnosed. All four comorbidity index score during diagnostic period predicted one-year and 5-year mortality rate well both in high risk and low risk group. Clinicians should screen different comorbidities, determine primary prevention and control disease activity to improve the functional status, quality of life and mortality of rheumatoid arthritis, especially in the patients with initial high comorbidity index scores.

REFERENCE

[1] Baillet, A., et al., *Points to consider for reporting, screening for and preventing selected comorbidities in chronic inflammatory rheumatic diseases in daily practice: a EULAR initiative*. Ann Rheum Dis, 2016. 75(6): p. 965-73.

Table 1. 1-year and 5-year mortality analysis for four comorbidity indexes.

Comorbidity indexes	Mortality rate (per 1000 people)	
	1-year	5-year
CCI		
Low risk (0-1)	3	41
High Risk (>1)	23	177
ECI		
Low risk (0-3)	4	43
High Risk (>3)	15	135
MMI		
Low risk (0-1)	4	43
High Risk (>1)	19	169
RDCI		
Low risk (0-2)	4	43
High Risk (>2)	18	159

High risk group for each index was defined as around the top 20% patients.

Table 2. The four comorbidity indexes discrimination for 1- and 5-year survival in patients with RA.

Models	1-year mortality		5-year mortality	
	Harrell's c-statistics	AIC	Harrell's c-statistics	AIC
Base model	0.744	1868	0.777	10281
Base model+ CCI	0.796	1783	0.802	9879
Base model+ ECI	0.772	1829	0.793	10024
Base model+ MMI	0.779	1821	0.792	10038
Base model+ RDCI	0.773	1817	0.791	10048

Base model included age, gender, income quartiles, urbanization and occupation groups. The Harrell's c-statistic indicates model prediction as the followings: 0.5 (as well as chance), 0.7–0.8 (acceptable), 0.8–0.9 (excellent), and 0.9–1 (outstanding prediction). The AIC statistic was calculated, and a small AIC indicates better prediction of the model.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2019-eular.4513

AB0260 TREATMENT WITH BIOTECHNOLOGICAL DRUGS ACCORDING TO PRE-DEFINED SELECTION CRITERIA IN PATIENTS WITH RHEUMATOID ARTHRITIS: PRELIMINARY RESULTS OF A SINGLE COHORT

Daniela Iacono, Ilenia Pantano, Serena Fasano, Giuseppe Scalise, Francesco Ciccio. *University of Campania Luigi Vanvitelli, Rheumatology, Naples, Italy*

Background: Current recommendations on the treatment of Rheumatoid Arthritis (RA) are based on a treat to target approach, nevertheless which biologic drug should be used in an unresponsive patient is not clarified (1). Such a strategy is essentially justified by the fact that no biotechnological drug has proved to be superior to any other (2).

Recent studies have reported some disease or patient features that are associated with a greater or lesser likelihood of response (3). Nevertheless, an adapted therapy to the single patient and based on physiopathological mechanisms has not been acquired yet.

Objectives: Aim of this study was to evaluate if the choice of a tailored therapy, based on patient and disease features, would be an effective strategy.

Methods: From April 1st 2017, at our Department of Rheumatology of the University of Campania, each patient with RA has been characterized, at enrolment, for demographic and disease features, and started a biological Disease-modifying antirheumatic drug based on an established algorithm (**Figure 1**). Attainment of the targeted end point i.e. remission (R) as assessed by Simplified Disease Activity Index (SDAI) <3.3 or at least low disease activity (LDA), SDAI<11, has been evaluated at 3, 6 and 12 months.

Figure 1: Biologic algorithm
 TNF, Tumor necrosis factor; BMI, Body Mass Index;
 RF, Rheumatoid Factor; ACPA, Anti-Citrullinated cyclic Peptides Antibodies

Figure 1

Results: Forty-nine patients were admitted to our centre from April 1st2017 to December 31st2018. Out of them, 36 patients have been followed up at least for 3 months and were included in the study (algorithm+ patients). Out of them, 26 (72.2%) reached 6 months of treatment, while 16 (44.4%) 12 months of treatment. Among the 26 patients evaluated at 6 months, 23(88.5%) achieved the targeted end point. At 12 months, 16/16 patients (100%) preserved a status of remission or at least low disease activity. We compared our results to those registered, from January 2015 to September 2016, in a RA cohort of 79 patients (RA general cohort). We found a significant difference in regard to attainment of the target at 6 months (23/26 patients, 88.5% algorithm+ vs 45/67 patients, 67.2% RA general cohort; p=0.04) and at 12 months (16/16

patients, 100% algorithm+ vs 40/57 patients, 70.2% RA general cohort; p=0.01) (**Table 1**). Notably, 32 out of the 79 patients had undergone a biological drug which didn't follow the predefined algorithm. These patients (algorithm- patients) presented a further lower incidence of response with regard to those enrolled according to the algorithm: 22/32 patients (68.7%) at 3 months; p=0.4; 17/29 (58.6%) at 6 months; p=0.001; 17/24 (70.8%) at 12 months; p=0.03).

Conclusion: The choice of a personalized approach toward treatment of RA might be an effective strategy to achieve the targeted end point of remission or at least low disease activity in every patient.

REFERENCES

- [1] Smolen JS et al. *Ann Rheum Dis* 2017;76:960–77
- [2] Pierresnard A et al. *Joint Bone Spine*. 2013;80:386-92.
- [3] Daien CI et al. *Mediators of Inflammation* 2014;2014:386148

Table 1. Comparison of percentage of response between Algorithm + patients (n.36) and RA general cohort (n.79)

	Algorithm+ patients	RA general cohort	p
LDA/R 3 months	28/36 (77.7%)	51/76 (67.1%)	0.25
LDA/R 6 months	23/26 (88.5%)	45/67 (67.2%)	0.04
LDA/R 12 months	16/16 (100%)	40/57 (70.2%)	0.01

Disclosure of Interests: DANIELA IACONO Speakers bureau: PFIZER company, Ilenia Pantano: None declared, SERENA FASANO: None declared, GIUSEPPE SCALISE: None declared, Francesco Ciccio Grant/research support from: CELGENE, PFIZER, Consultant for: UCB, NOVARTIS, CELGENE, PFIZER, LILLY, Paid instructor for: UCB, NOVARTIS, CELGENE, PFIZER, LILLY, JANSSEN, Speakers bureau: UCB, NOVARTIS, CELGENE, PFIZER, LILLY, JANSSEN, MSD, ROCHE, AMGEN

DOI: 10.1136/annrheumdis-2019-eular.3473

AB0261 TARGET SETTING OF FUNCTIONAL REMISSION FOR HAND AND WRIST SURGERIES USING GRIP POWER AND PATIENT-REPORTED OUTCOME MEASURES IN PATIENTS WITH RHEUMATOID ARTHRITIS: A PROSPECTIVE COHORT STUDY

Hajime Ishikawa¹, Asami Abe¹, Toshihisa Kojima², Masayo Kojima³, Yoichi Kurosawa¹, Eriko Hasegawa¹, Satoshi Ito¹, Naoki Ishiguro², Akira Murasawa¹. ¹Niigata Rheumatic Center, Rheumatology, Shibata city, Niigata 957-0054, Japan; ²Nagoya University Hospital, Orthopaedic Surgery, Nagoya city, Japan; ³Nagoya City University Graduate School of Medical Sciences, Medical Education, Nagoya city, Japan

Background: The treatment aim of rheumatoid arthritis (RA) is achieving and maintaining functional remission via tight medical control. However, if adequate medication is not administered in the very early stage of the disease, surgical reconstruction for the structurally damaged hand and wrist is sometimes required.

Objectives: To evaluate the effect of surgical treatment of the hand and wrist⁽¹⁾ and to set the target of functional remission using grip power and patient-reported outcome measures (PROs) at baseline.

Methods: A prospective observational cohort study was performed in RA patients who were scheduled to have primary hand and/or wrist surgeries. Assessments were performed at baseline and 12 months after surgery using grip power (GP), pain visual analogue scale (pain VAS), general health (GH), disease activity score 28- C-reactive protein(4) (DAS28-CRP (4)), disabilities of the arm, shoulder and hand (DASH), European quality of life scale with five dimensions (EQ-5D), Beck depression inventory -II (BDI-II) and health assessment questionnaire- disability index (HAQ-DI) for all registered patients. Baseline data for each item in the group with HAQ remission (HAQ-DI≤0.5) at 12 months (REM) were compared with those in the group without remission at 12 months (non-REM).

Results: There were 137 sites (63 hands, 74 wrists) in 119 patients whose average age was 62 (19-88) years and average disease duration was 14 (1-45) years. Overall, the physical function (GP, pain VAS, DASH, HAQ-DI), quality of life (HAQ-DI, GH, EQ-5D), depression (BDI-II) and disease activity (DAS28-CRP(4)) had significantly improved at 12 months (p<0.01) (**Table 1**). In the REM group (n=47), the GP and EQ-5D were significantly higher (p<0.01) and the HAQ-DI, DASH and BDI-II significantly lower (p<0.01) than in the non-REM group (**Table 2**). The cut-off value at baseline for achieving HAQ remission at 12 months after surgery was 119 mmHg (sensitivity: 0.70, specificity: 0.64) in GP, 0.81 (0.81, 0.77) in HAQ-DI, 36.9 (0.74, 0.73) in DASH, 0.69 (0.87, 0.74) in EQ-5D and 9.5 (0.72, 0.60) in BDI-II.