AB0209

PREDICTORS OF ACHIEVING STRINGENT REMISSION IN PATIENTS WITH ESTABLISHED RHEUMATOID ARTHRITIS IN CLINICAL REMISSION FOLLOWING A TREAT-TO-TARGET STRATEGY

S. Møller-Bisgaard[1,2], S. Georgiadis[1], K. Hørslev-Petersen[2], B. Ejbjerg[2], M. L. Hetland[1], L. Ørnbjerg[1], D. Glinatsi[1], J. Møllenbach Møller[2], M. Boesen[2], K. Stengaard-Pedersen[2], O. Rintek Madsen[2], B. Jensen[2], J. Villadsen[2], E. M. Hauge[2], P. Bennett[2], O. Hendricks[2], K. Asmussen[2], M. Kowalski[2], H. M. Lindegaard[2], H. Bliddal[2], N. Steen Krogh[2], T. Ellingsen[2], A. Nielsen[2], L. Balding[2], A. G. Jurik[2], H. Thomsen[2], M. Østergaard[1]. [1]*Copenhagen Center for Arthritis Research, Center for Rheumatology and Spine Diseases, Rigshospitalet, Glostrup, Denmark*; [2]*Rheumatology and Radiology Departments at Hospitals at Zealand, Jutland and Funen, Denmark, Denmark*

Background: Achieving remission according to stringent criteria such as Simplified Disease Activity Index (SDAI) and ACR/EULAR Boolean remission is associated with a better long-term outcome in patients with RA[1]. Possible predictors of achieving stringent remission in patients in clinical remission, following targeted treatment strategies, have not been investigated.

Objectives: To investigate the predictive value of clinical, radiographic and MRI variables on achieving more stringent remission in RA patients in clinical remission, following MRI and conventional treat-to-target (T2T) strategies.

Methods: In this post-hoc study, data were used from 171 RA patients in clinical remission (DAS28-CRP< 3.2 and no swollen joints) on conventional synthetic DMARDs, included in the IMAGINE-RA randomized clinical trial[2], where they followed an MRI T2T strategy (targeting absence of osteitis) combined with clinical remission (DAS28-CRP≤3.2 and no swollen joints) or a conventional T2T strategy (targeting clinical remission only). Baseline contrast-enhanced MRIs of the dominant wrist and 2nd-5th MCP joints and radiographs of hands and feet were evaluated according to the OMERACT RAMRIS scoring system and Sharp/van der Heijde method, respectively, by two experienced readers. Potential clinical, radiographic and MRI baseline predictors of remission were first tested in univariate logistic regression analyses with achievement of Clinical Disease Activity Index (CDAI), SDAI, and ACR/EULAR Boolean remission at 24 months as dependent variables. Variables with p<0.25 were subsequently tested in multivariate logistic regression analyses with backward selection, adjusted for age, gender and strategy group. Missing values of covariates were imputed using chained equations.

Results: Based on the univariate analyses, tender joint count, patient VAS global, VAS pain, VAS fatigue, physician VAS global, HAQ, MRI osteitis, radiographic and MRI erosion and joint space narrowing scores were included in multivariate analyses (Table).

Following the MRI T2T strategy was a positive predictor and high patient VAS global a negative predictor of achieving all definitions of remission. Furthermore, high patient VAS pain was negatively associated with achieving SDAI and ACR/EULAR Boolean remission and high tender joint count negatively associated with achieving CDAI and SDAI remission.

Multivariate logistic regression analyses with backward selection, final models

	Dependent variables, remission at 24 months								
	CDAI			SDAI			ACR/EULAR Boolean		
	OR	95% CI	p-value	OR	95% CI	p-value	OR	95% CI	p-value
Covariates									
MRI T2T strategy group	2.94	1.25-7.52	0.013	2.46	1.03-6.35	0.043	5.47	2.33-14.11	<0.001
Female	0.90	0.36-2.25	0.82	0.80	0.31-2.05	0.64	0.80	0.32-1.97	0.63
Age	1.02	0.98-1.07	0.32	1.02	0.98-1.07	0.33	1.03	0.99-1.07	0.15
Tender joint count (0-28)	0.33	0.12-0.86	0.023	0.29	0.10-0.78	0.013			
Patient VAS global	0.91	0.88-0.94	<0.001	0.93	0.88-0.97	<0.001	0.93	0.88-0.98	0.003
Patient VAS pain				0.95	0.91-1.00	0.049	0.92	0.87-0.98	0.004

Conclusion: In RA patients in clinical remission, poor patient reported outcomes and tender joint count were associated with decreased chance of achieving stringent remission, while following an MRI T2T strategy predicted stringent remission across all definitions thereof.

References:

[1] Smolen et al. Ann Rheum Dis 2017
[2] Møller-Bisgaard et al. JAMA 2019

Disclosure of Interests: Signe Møller-Bisgaard Grant/research support from: AbbVie, Consultant of: BMS, Speakers bureau: BMS, Celgene, Pfizer, Stylianos Georgiadis Grant/research support from: Novartis, Kim Hørslev-Petersen: None declared, Bo Ejbjerg: None declared, Merete L. Hetland Grant/research support from: BMS, MSD, AbbVie, Roche, Novartis, Biogen and Pfizer, Consultant of: Eli Lilly, Speakers bureau: Orion Pharma, Biogen, Pfizer, CellTrion, Merck and Samsung Bioepis, Lykke Ørnbjerg: None declared, Daniel Glinatsi: None declared, Jakob Møllenbach Møller: None declared, Mikael Boesen Consultant of: AbbVie, AstraZeneca, Eli Lilly, Esaote, Glenmark, Novartis, Pfizer, UCB, Paid instructor for: IAG, Image Analysis Group, AbbVie, Eli Lilly, AstraZeneca, esaote, Glenmark, Novartis, Pfizer, UCB (scientific advisor)., Speakers bureau: Eli Lilly, Esaote, Novartis, Pfizer, UCB, Kristian Stengaard-Pedersen: None declared, Ole Rintek Madsen: None declared, Bente Jensen: None declared, Jan Villadsen: None declared, Ellen Margrethe Hauge: None declared, Philip Bennett: None declared, Oliver Hendricks: None declared, Karsten Asmussen: None declared, Marcin Kowalski: None declared, Hanne Merete Lindegaard: None declared, Henning Bliddal Grant/research support from: received research grant fra NOVO Nordic, Consultant of: consultant fee fra NOVO Nordic, Niels Steen Krogh: None declared, Torkell Ellingsen: None declared, Agnete Nielsen: None declared, Lone Balding: None declared, Anne Grethe Jurik: None declared, Henrik Thomsen: None declared, Mikkel Østergaard Grant/research support from: AbbVie, Bristol-Myers Squibb, Celgene, Merck, and Novartis, Consultant of: AbbVie, Bristol-Myers Squibb, Boehringer Ingelheim, Celgene, Eli Lilly, Hospira, Janssen, Merck, Novartis, Novo Nordisk, Orion, Pfizer, Regeneron, Roche, Sandoz, Sanofi, and UCB, Speakers bureau: AbbVie, Bristol-Myers Squibb, Boehringer Ingelheim, Celgene, Eli Lilly, Hospira, Janssen, Merck, Novartis, Novo Nordisk, Orion, Pfizer, Regeneron, Roche, Sandoz, Sanofi, and UCB

DOI: 10.1136/annrheumdis-2020-eular.2512

AB0210

ACREULAR: AN R PACKAGE FOR THE CALCULATION AND VISUALISATION OF ACR/EULAR RELATED RHEUMATOID ARTHRITIS MEASURES

F. Morton[1], J. Nijjar[2], C. Goodyear[1], D. Porter[3]. [1]*University of Glasgow, Institute of Infection, Immunity and Inflammation, Glasgow, United Kingdom*; [2]*GlaxoSmithKline plc, Stevenage, United Kingdom*; [3]*NHS Greater Glasgow and Clyde, Glasgow, United Kingdom*

Background: The American College of Rheumatology (ACR) and the European League Against Rheumatism (EULAR) individually and collaboratively have produced/recommended diagnostic classification, response and functional status criteria for a range of different rheumatic diseases. While there are a number of different resources available for performing these calculations individually, currently there are no tools available that we are aware of to easily calculate these values for whole patient cohorts.

Objectives: To develop a new software tool, which will enable both data analysts and also researchers and clinicians without programming skills to calculate ACR/EULAR related measures for a number of different rheumatic diseases.

Methods: Criteria that had been developed by ACR and/or EULAR that had been approved for the diagnostic classification, measurement of treatment response and functional status in patients with rheumatoid arthritis were identified. Methods were created using the R programming language to allow the calculation of these criteria, which were incorporated into an R package. Additionally, an R/Shiny web application was developed to enable the calculations to be performed via a web browser using data presented as CSV or Microsoft Excel files.

Results: acreular is a freely available, open source R package (downloadable from https://github.com/fragla/acreular) that facilitates the calculation of ACR/EULAR related RA measures for whole patient cohorts. Measures, such as the ACR/EULAR (2010) RA classification criteria, can be determined using precalculated values for each component (small/large joint counts, duration in days, normal/abnormal acute-phase reactants, negative/low/high serology classification) or by providing “raw” data (small/large joint counts, onset/assessment dates, ESR/CRP and CCP/RF laboratory values). Other measures, including EULAR response and ACR20/50/70 response, can also be calculated by providing the required information. The accompanying web application is included as part of the R package but is also externally hosted at https://fragla.shinyapps.io/shiny-acreular. This enables researchers and clinicians without any programming skills to easily calculate these measures by uploading either a Microsoft Excel or CSV file containing their data. Furthermore, the web application allows the incorporation of additional study covariates, enabling the automatic calculation of multigroup comparative statistics and the visualisation of the data through a number of different plots, both of which can be downloaded.