Influence of patient global assessment on the disease activity assessment in patients with rheumatoid arthritis: a meteor cross-sectional study

RJO Ferreira[1], M Ndosi[2], C Duarte[1], P Carvalho[1], A Chopra[3], K Salomon-Escoto[4], D Vega5, D van der Heijde[6], P Machado[7], JAP da Silva[1], on behalf of METEOR investigators

Author affiliations

1. CHUC, Coimbra, Portugal
2. UWE, Bristol, United Kingdom
3. CRD, Pune, India
4. UMMMC, Worcester, United States
5. HU/UANL, Monterrey, Mexico
6. LUMC, Leiden, Netherlands
7. UCL, London, United Kingdom

Background

Disease activity indices (DAI) are used to guide immunosuppressive therapy in rheumatoid arthritis (RA). The inclusion of patient global assessment (PGA) in these indices has been questioned as it conveys mainly disease impact rather than disease activity.

Objectives

To determine the influence of PGA on patient disease states and to determine PGA correlations with inflammatory parameters, disease impact, demographic, clinical and contextual factors.

Methods

The METEOR international database was used, namely data from patients' first available visit with no missing values on PGA, tender and swollen joint counts (TJC28, SJC28) and C-reactive protein (CRP). Remission rates were compared according to the DAS28CRP3v vs 4v and ACR/EULAR Boolean remission vs near-remission (failing 1 of the 4 criteria) definition. We assessed the correlation of PGA with (predominantly) inflammatory (TJC28, SJC28, CRP) and disease impact (pain and HAQ) factors. We used hierarchical modelling to explain PGA by 4 blocks (B) of independent variables

(B1: gender, age, disease duration; B2: biologic DMARD, Gross National Income; B3: pain, HAQ; and B4: TJC28, SJC28, CRP).

Results

Among the 18280 patients analysed, 1930 (10.6%) were in DAS28CRP4v remission, and 2197 (12.0%) in DAS28CRP3v remission. According to the Boolean definition, 1207 (6.6%) patients were in remission. PGA was the main obstacle to Boolean remission: 2090 (79.0%) of the 2645 near-remission patients (Table 1). A considerable proportion of patients with low inflammation perceived high PGA (Figure 1).

PGA correlated better with Pain (r_p=.79) and HAQ (r_p=.55) than with TJC28 (r_p=.45), SJC28 (r_p=.36) or CRP (r_p=.25).

In the entire dataset, 60.2% of PGA variance was explained by Pain and HAQ, 1.8% by B1 and B2 of covariates and only 1.3% by B4 (TJC28, SJC28, CRP) (Table 2). In near-remission patients, B4 did not contribute significantly to changes in the model.

Table 1. Remission and near-remission rates (n=18280)

Disease Activity	**3v**	**4v**
DAS28CRP#, n (%)		
Remission (≤1.9)	2197 (12.0)	1930 (10.6)
Low (≤2.2)	3855 (21.1)	3485 (19.1)
Moderate to High (>2.2)	1228 (66.9)	12865 (70.3)
ACR/EULAR Boolean, n (%)		
Remission	1207 (6.6)	
Near-rem. PGA	2090 (11.4)	
Near-rem. CRP	214 (1.2)	
Near-rem. SJC28	165 (0.9)	
Near-Rem. TJC28	176 (1.0)	
Non-Remission	14428 (78.9)	

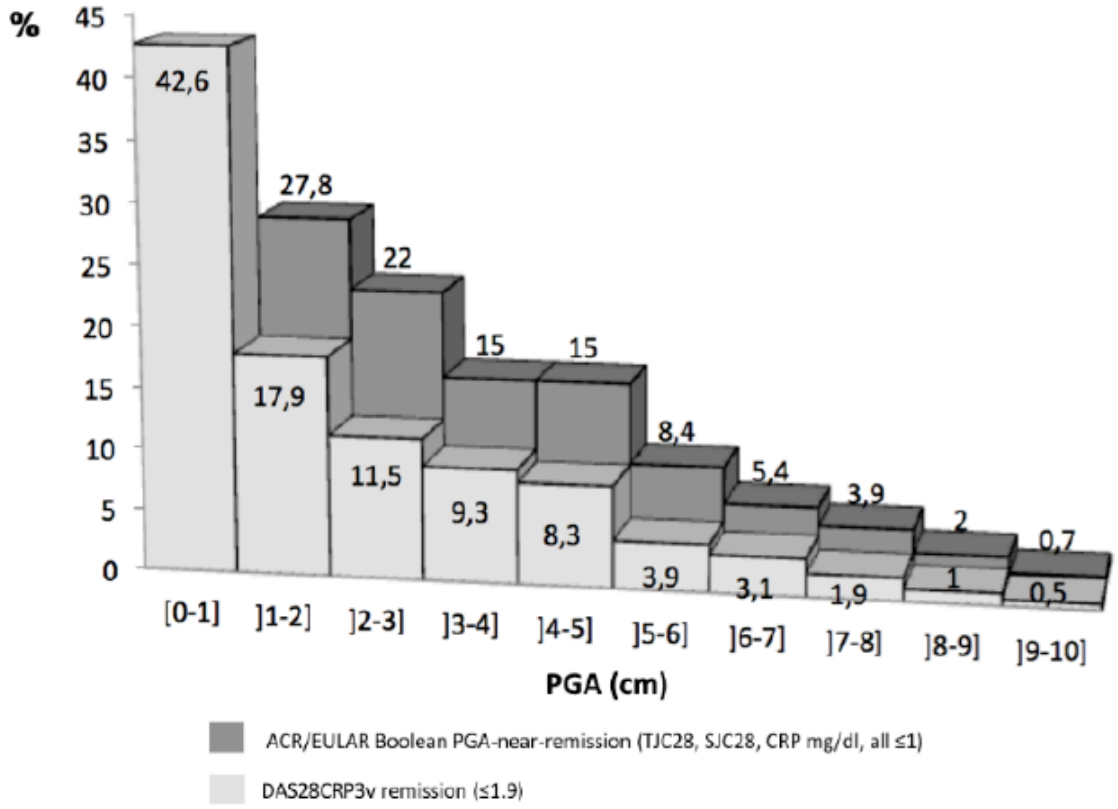
Fleischmann 2015 (PMID:25143522)

Table 2. Hierarchical multivariable regression analysis to explain PGA

Model Block	All patients (n=6388)			Patients in Near-Remission (n=831)		
	Adj. R^2	R^2 change	sig. F Change	Adj. R^2	R^2 change	sig F Change
B1	.008	.008	<.001	.015	.018	.002
B2	.018	.010	<.001	.024	.012	.007
B3	.620	.602	<.001	.423	.398	<.001
B4	.633	.013	<.001	.426	.004	.092

Legend: B1=Gender+Age+Dis. duration; B2=B1+Gross Nat. Income+bDMARD; B3=B1+B2+Pain+HAQ; B4=B1+B2+B3+TJC28,SJC28,CRP

Figure 1. PGA distribution in patients in remission by DAS28CRP3v (n=2197) and in PGA-near-remission by Boolean definition (n=2090)



Conclusions Two thirds of patients that achieve TJC28, SJC28, and CRP≤1 still perceive high PGA despite disease "inflammatory" control. The weight of PGA in DAI could lead to immunosuppressive overtreatment. In these patients, disease impact management, including non-pharmacological treatments delivered by Health Care Professionals, are more likely to be effective.

Disclosure of Interest

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