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LETTER

The Effect Size of Fibromyalgia on PG-VAS in Rheumatoid Arthritis Patients. Adjustment Proposal in DAS28-ESR: Letter to the Editor regarding Challa, D.N.V., Crowson, C.S. & Davis, J.M. Rheumatol Ther (2017) 4: 201. doi:10.1007/s40744-017-0063-5

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Dear Editor,

With great interest we read the article "The Patient Global Assessment of Disease Activity in Rheumatoid Arthritis: Identification of Underlying Latent Factors", by Challa et al [1]. The authors conducted an analytic, observational study in 70 rheumatoid arthritis (RA) patients. Data were evaluated using exploratory factor analysis to determine to what extent each factor influences the discordant Patient Global Assessment (PGA) of disease activity. Interestingly, we observed in the multivariate analysis the persistent influence of fibromyalgia syndrome in the PGA. The disease activity score in 28 joints with erythrocyte sedimentation rate (DAS-ESR) is a method used to monitor disease activity in RA and is calculated using PGA.

We hypothesized that every non-RA musculoskeletal disorder could impact the PGA [2–5], as the patient no longer differentiates the pain source when various disorders coexist. We therefore, conducted an observational, descriptive cross-sectional study in 395 RA patients at a university hospital and analyzed the effect of fibromyalgia, knee osteoarthritis, and presence of tendinopathy (any) on the status of RA activity. Evaluation of the Health Assessment Questionnaire (HAQ) and Patient's Global assessment Visual Analogue Scale (PG-VAS) was included. We considered a VAS >40 to have clinical significance. We analyzed 395 patients, 390 (91.1%) women, with a mean age of 51.1 (SD 12.7). Table 1 shows the clinical and activity characteristics of the RA patients with and without fibromyalgia. We found in the bivariate analysis that the presence of a VAS >40 was associated with a DAS28-ESR greater than 2.6 (OR 12.47, 5.2–29 95% CI, $p = 0.001$). Fibromyalgia was a predictor of PG-VAS >40 (OR 3.49, 1.72–7.08 95% CI, $p = 0.0001$). The other variables analyzed in the study did not have any influence on the DAS28-ESR in RA patients. As with the study by Challa et al., we observed an additive effect of fibromyalgia in the PG-VAS and therefore in the DAS28-ESR in patients with RA. The effect size of fibromyalgia diagnosis on the DAS28 was 27%. We propose

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Table 1 Clinical, activity, and function characteristics of RA patients

Variable	With FM $n = 39$	Without FM $n = 356$	p value
Age, years mean, SD	55.5, 6.8	50.6, 13.3	0.02
DAS28-ESR median, IQR	3.0, 1.3	3.1, 1.4	0.5
ESR mm/Hr median, IQR	27.02, 14.8	29.1, 12	0.35
PG-VAS mm, mean, SD	29.9, 4.7	22, 1.2	0.001
PG-VAS >40 mm *n*, %	15, 38.5	54, 15.2	0.001
Presence of morning stiffness *n*, %	17, 43.6	119, 33.4	0.2
Presence of night pain *n*, %	39, 100	336, 94.4	0.3
Functional class I *n*, %	32, 82.1	270, 75.8	0.14
Knee osteoarthritis *n*, %	11, 28.2	61, 17.1	0.08
Tendinopathy *n*, %	4, 10.3	15, 4.2	0.094
HAQ-8			
Dress yourself, including tying shoelaces and doing buttons? *n*, %	29, 74.4	217, 61	0.1
Get in and out of the bed? *n*, %	36, 92.3	337, 94.7	0.5
Lift a full cup or glass to your mouth? *n*, %	36, 92.3	317, 89	0.5
Wash and dry our entire body? *n*, %	36, 92.3	336, 94.4	0.5
Bend down to pick up clothing from the floor? *n*, %	34, 87.2	326, 91.6	0.35
Turn faucets/taps on and off? *n*, %	38, 97.4	342, 96.1	0.67
Get in and out of a car? *n*, %	36, 92.3	342, 96.1	0.27
Walk outdoors on flat ground?	34, 87.2	320, 89.9	0.5

Functional class I: without limitation to activities of daily living
DAS28-ESR Disease Activity Score of 28 joints with ESR, *PG-VAS* patient's global assessment visual analogue scale, *ESR* erythrocyte sedimentation rate, *IQR* interquartile range, *HAQ* health assessment questionnaire

to adjust the DAS28 when the PG-VAS is above 40 by multiplying by 0.73 to consider the effect of fibromyalgia in the evaluation. We believe this issue could be important in order to avoid overtreatment.

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Compliance with Ethics Guidelines. This article is based on previously conducted studies and does not involve any new studies of human or animal subjects.

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