Severity of Morning Stiffness Is Associated More Strongly with Disease Activity in Patients with Rheumatoid Arthritis

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Morning stiffness (MS) is a complex symptom involving pain and functional limitation. It is not included in the ACR/EULAR 2010 classification criteria for rheumatoid arthritis (RA) nor is a component of Disease Activity Scores, which generally serve as the primary outcome measures to assess efficacy of therapies for RA. However, this symptom at first presentation is a risk factor for more severe disease reflected by structural damage or disease persistence. However, the best way to evaluate morning stiffness, duration in minutes or severity by a visual analogue scale (VAS), has been controversial.

Background: To compare the severity and duration of MS in a cohort of patients with RA, assessed by physician and on a self-report questionnaire, with disease activity and functional disability.

Methods: We conducted a cross-sectional observational study that included consecutively 111 patients with established RA (ACR 1987 criteria) from two rheumatology centers. Patients were assessed for MS, half of them were asked about the duration in minutes and and the other half were evaluated using a self reported questionnaire which included the intensity (VAS) and duration (in minutes and Likert Scale) of MS. Physician global assessment, pain and global status by VAS, functional disability (HAQ-DI), tender and swollen joint counts (total of 28), erythrocyte sedimentation rate and disease activity (DAS28 and CDAI) were evaluated. Regression models were used to estimate possible associations between these variables and morning stiffness.

Results: One hundred and eleven patients were included, 88% women (n=96). Mean age was 52 years old (SD 13) and median disease duration was 8 years (IQR 4-12). Fifty seven patients (51%) reported MS, 27 out of 52 were asked by the physician and 30 out of 59 were assessed by a questionnaire. MS measured in minutes by the physician showed a significant correlation with functional disability scores HAQ-DI (r= 0.72, p<0.001), whereas there was an acceptable correlation (r=0.61, p<0.001) between DAS28 and severity of MS measured by VAS (TABLE). When intensity of MS was evaluated by VAS (assessment in both numerical and non-numerical scales), we observed that a value ≥ 5.5 centimeters (0-10) was associated to severe disease activity (DAS28 > 5.1) with a sensitivity 44% and specificity 100% (AUC 0.76).

Conclusion: Duration of morning stiffness evaluated through patient interview appears to reflect functional disability while the degree of morning stiffness was associated more strongly with inflammatory activity in this cohort of RA patients.

Table: MS correlation (assessed by different methods) by DAS28, CDAI and HAQ-DI

MORNING STIFFNESS		DAS 28	CDAI	HAQ-DI
QUESTIONING	Minutes	0.63*	0.60*	0.72*
SELF-ADMINISTERED QUESTIONING	Minutes	0.38*	0.32*	0.01
	Likert's Scale	0.37*	0.30	0.001
	Intensity in the VAS	0.61*	0.55	0.33*
	Intensity in the en VAS nº	0.61*	0.57	0.30

*p < 0.05