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Letter for Joint Bone Spine Journal

To apply the recent EULAR recommendations, more knowledge on adherence patterns to medication and to physical activity is needed.

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Key message : Patients with inflammatory arthritis who are more adherent to treatment are not more physically active.

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Dear Editor, recently, 2 clinical guidelines from EULAR bring new information on how to improve physical activity (PA) and how to prescribe medication in patients with inflammatory arthritis (IA) [1,2]. Adherence to both medications and PA is insufficient in patients with IA, such as spondyloarthritis (axSpA), rheumatoid arthritis (RA) or psoriatic arthritis (PsA) [3]. Although adherence was stated as a major issue, and is currently the object of a EULAR taskforce [4], no recommendation was made on how to target patients with adherence issues. Research agendas encouraged to explore patient profiles accessible to adherence-intervention strategies [1,2]. Thus, a better knowledge of patterns towards adherence to medication and PA is needed.

We performed in 2019-2020 a study to assess and compare adherence to medication and levels of PA collected through Apps, in patients with IA. This was an international, multicentric, cross-sectional study (NCT04426747). Consecutive patients were included if they had definite axSpA, RA or PsA, were aged above 18 and able to walk, with smartphones compatible with Apps measuring steps. Clinical data were entered by rheumatologists or research nurses during outpatient visit and other data were entered by patients in the waiting area through a link sent on their smartphone or in a paper form. Adherence to medication was assessed using the Medication Adherence Report Scale MARS-9 (ranging from 9 to 45 with higher scores indicating higher adherence) [5]. PA was measured by steps per day over the past 4 weeks, through the patient's smartphone app. The link between the MARS-9 score and PA was assessed by Spearman's correlation, linear and logistic regression (explaining the 2 higher tertiles of the MARS score). Variables included age, gender, disease duration, disease activity, body mass index, working status, bDMARD prescription, comorbidities and functional capacity through the modified Health Assessment Questionnaire (mHAQ). There was no imputation of missing data.

Of 245 patients included, 150 had analyzable data (69 (45%) axSpA, 63 (42%) RA, 18 (12%) PsA). Mean age was 48.0 years (standard deviation 13.4), mean disease duration 11.7 (10.2) years and 47% were women (*Table 1*). 70% were receiving a biologic, and disease activity was moderate. Adherence to medication was high: the mean MARS score was 39.4 (6.3) with a median of 41. PA was moderate: the mean steps per day collected through Apps was 5457 (3730), median 4473 with 28% walking over 7000 steps per day [6]. We failed to show a link between adherence to medications and steps per day ($R=-0.06$, $p=0.20$); patients with a lower adherence to medication (lowest MARS tertile scores, i.e., ≤ 40) did not differ in terms of PA: 5611 (3634) versus 5051 (4155) steps per day ($p=0.80$). In univariate linear regression, patients with lower adherence to medication had longer disease duration and a trend to lower functional capacity (*Table 1*). The logistic regression was confirmatory (*Table 1*).

In conclusion, in this population of patients with long-standing IA, adherence to medication was high whereas PA was insufficient. Patients with IA who were more adherent to treatment were not more physically active than those less adherent. Adherence to medication and adherence to lifestyle changes may be linked to different coping mechanisms, which should be further explored to allow implementation of the recent EULAR recommendations [1,2].

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Table 1: Characteristics of the IA population and relation with adherence to medication

Item	All patients N=150	Less adherent to medication (1st tertile of MARS)	Most adherent to medication (2nd and 3rd tertile of MARS)	Factors associated with higher medication adherence, univariate linear regression, r	Factors associated with the higher tertiles of medication adherence, univariate logistic regression, odds ratio [95% confidence interval]
Age (years), mean (SD)	48.0 (13.4)	46.5 (13.8)	48.6 (13.2)	0.10	1.01 [0.98,1.04]
Women, N (%)	87 (61)	28 (35)	52 (65)	-0.03	1.21 [0.58,2.59]
Disease duration (years), mean (SD)	14.2 (9.8)	16.3 (12.7)	9.3 (7.8)	-0.31**	0.93 [0.89,0.97]**
BMI (kg/m ²), mean (SD)	26.0 (5.2)	26.0 (6.0)	26.2 (5.0)	0.02	1.00 [0.93,1.08]
Paid activity, N(%)	92 (67)	29 (34)	55 (65)	-0.05	0.89 [0.42,1.87]

Ongoing biotherapy, N(%)	88 (70)	28 (31)	62 (69)	0.03	1.41 [0.65,3.05]
Comorbidities (Functional Comorbidity Index, 0-18), mean (SD)	0.9 (1.1)	0.7 (1.0)	1.0 (1.1)	0.04	0.37 [0.89,1.79]
Function (mHAQ, 0-3)	0.9 (1.1)	1.2 (1.2)	0.8 (1.0)	-0.16	-0.71 [0.51,0.98]*
PA, steps per day, mean (SD)	5457 (3730)	5381 (3730)	5461 (3547)	- 0.08	1.00 [0.99,1.00]

MARS, 9 items Medication Adherence Report Scale ;SD, Standard Deviation ; BMI, Body Mass Index; MHAQ, Modified Health Assessment Questionnaire; PA, Physical Activity.

*=P<0.05, **=P<0.001.