

Adherence to medication in patients with rheumatic diseases during COVID-19 pandemic

With great interest, we read the Pineda-Sic *et al*'s report on treatment adherence behaviours in rheumatic diseases during COVID-19 pandemic in Latin America.¹ They reported that 15.1% of patients with rheumatic disease suspend their medications during COVID-19 crisis.¹ Lack of availability (48%) and fear of the immunosuppressive effect of medications (25%) were the most common reasons. To address medication non-adherence in our population, we conducted a study about medication adherence in patients with rheumatic diseases in the East Azarbaijan province, which is one of the provinces of Iran with a high prevalence of COVID-19. The study was conducted in accordance with the Helsinki humanity research declaration (2008). For a period of 2 weeks from 10 to 24 July 2020, information about adherence to medication behaviours of patients after COVID-19 outbreak was obtained by telephone interview in patients with various rheumatic diseases treated with non-steroidal anti-inflammatory drugs (NSAIDs), colchicine, glucocorticoids, synthetic disease-modifying antirheumatic drugs (DMARDs) and biologic DMARDs (bDMARDs). Patients under the age of 16, patients on remission who did not take medication, patients who refused to answer the questions and patients who did not respond to three phone calls were excluded. We defined non-adherence as $\geq 20\%$ change in the dose or frequency of the mentioned medications.²

After a telephone interview with 1324 patients with various rheumatic diseases, 591 females and 267 males with a mean age of 48.8 ± 13.4 and median (IQR) disease duration of 5 (2, 10) years were enrolled in this study (table 1). Non-adherence was observed in 56 (6.5%) patients after the COVID-19 outbreak. Thirty-nine (6.6%) females and 17 (6.4%) males were non-adherent ($p=0.448$). Mean age of adherent and non-adherent patients was 49.3 ± 13.6 and 45.3 ± 13.4 , respectively ($p=0.095$). Complete discontinuation of medications was the most common pattern of non-adherence (table 1). Fear of the immunosuppressive effects of medications was the most common reason for medication non-adherence (table 1). bDMARDs, NSAIDs and methotrexate were the medications that patients had the highest percentage of non-adherence to. Non-adherence in patients with seronegative spondyloarthritis was more common than other groups of diseases. The main reason was the higher rate of treatment with bDMARDs in this group of patients in our clinic. Non-adherence leads to exacerbation of symptoms in 9.6% of patients. COVID-19 was developed in 7 (0.8%) patients.

The data from this study showed that medication non-adherence was not common within 6 months after the issue of COVID-19 is widely discussed in the media. In agreement with our study, Schmeiser *et al* reported 10% non-adherence in the patients receiving antirheumatic medications.³ Fragoulis *et al* reported non-adherence to medications in 14.6% of patients with rheumatic diseases in Greece.⁴ Lack of resources/shortage of drug (3.8%), symptoms suggestive of COVID-19 (2.6%)

Table 1 Demographic and non-adherence characteristics of patients with rheumatic diseases (n=858)

	n	Non-adherence (%)	Pattern of non-adherence			Aetiology of non-adherence		
			Dose reduction or increase in frequency (%)	Irregular consumption (%)	Complete discontinuation (%)	Fear of the IS effect of medications (%)	Fear of the referring to clinics and hospitals (%)	Symptoms suggestive of COVID-19 (%)
Total number of patients	858	56 (6.5)	17 (30.4)	6 (10.7)	33 (58.9)	35 (62.5)	5 (8.9)	16 (28.5)
Diseases								
RA (%)	396 (46.2)	11 (2.8)	1 (9.1)	1 (9.1)	9 (81.8)	4 (36.4)	1 (9.1)	6 (54.5)
SpA (%)	139 (16.1)	23 (16.5)	7 (30.4)	2 (8.7)	14 (60.9)	12 (52.2)	3 (13)	8 (34.8)
SLE and APS (%)	70 (8.2)	2 (2.9)	1 (50)	0	1 (50)	2 (100)	0	0
BD (%)	64 (7.5)	3 (4.7)	0	1 (33.3)	2 (66.7)	3 (100)	0	0
Vasculitis (%)	53 (6.2)	1 (1.9)	1 (100)	0	0	1 (100)	0	0
UIA (%)	51 (5.9)	8 (15.7)	2 (25)	1 (12.5)	5 (62.6)	6 (75)	1 (12.5)	1 (12.5)
IIM, SSC, SS and others (%)	44 (5.1)	4 (9.1)	3 (75)	0	1 (25)	3 (75)	0	1 (25)
Others (%)	41 (4.8)	4 (9.8)	2 (50)	1 (25)	1 (25)	4 (100)	0	0
Medications								
NSAIDs (%)	92 (10.7)	12 (13)	4 (33.3)	3 (25)	5 (41.7)	6 (50)	2 (16.7)	4 (33.3)
Colchicine (%)	7 (0.8)	0	0	0	0	0	0	0
GCs (%)	469 (54.7)	38 (8.1)	10 (26.3)	3 (7.9)	25 (65.8)	23 (60.5)	2 (5.3)	13 (34.2)
Hydroxychloroquine (%)	254 (36.7)	12 (4.7)	2 (16.7)	2 (16.7)	8 (66.7)	8 (66.7)	2 (16.7)	2 (16.7)
Sulfasalazine (%)	72 (8.4)	4 (5.6)	0	2 (50)	2 (50)	4 (100)	0	0
Methotrexate (%)	327 (38.1)	33 (10.1)	5 (15.2)	0	28 (84.8)	27 (81.8)	2 (6.1)	4 (12.1)
Leflunomide (%)	19 (2.2)	1 (5.3)	0	0	1 (100)	1 (100)	0	0
Azathioprine (%)	44 (5.1)	2 (9.1)	2 (100)	0	0	2 (100)	0	0
Calcineurin inhibitors (%)	11 (1.3)	0	0	0	0	0	0	0
Mycophenolate mofetil (%)	42 (4.9)	4 (9.5)	0	0	4 (100)	4 (100)	0	0
Cyclophosphamide (%)	13 (1.5)	0	0	0	0	0	0	0
bDMARDs (%)	82 (9.6)	31 (37.8)	5 (16.1)	0	26 (83.9)	13 (41.9)	6 (19.4)	12 (38.7)

APS, antiphospholipid syndrome; BD, Behcet's disease; bDMARDs, biologic disease-modifying antirheumatic drugs; GCs, glucocorticoids; IIM, idiopathic inflammatory myopathies; IS, immunosuppressive; NSAIDs, non-steroidal anti-inflammatory drugs; RA, rheumatoid arthritis; SLE, systemic lupus erythematosus; SpA, seronegative spondyloarthritis; SS, Sjogren's syndrome; SSC, systemic sclerosis; UIA, undifferentiated inflammatory arthritis.

and fear of immunosuppressive effects of medications (2.2%) were the main reasons for non-adherence. However, it should be noted that this pandemic may last until the end of the year and possibly longer, and with cross-sectional studies, it is not possible to give a definitive opinion on the overall impact of the COVID-19 on the medication adherence of patients with rheumatic diseases for a longer period of time.

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