AB0811

DIRECT COST OF BIOLOGICS IN RHEUMATOID ARTHRITIS PATIENTS IN A DEVELOPING COUNTRY: RESULTS FOR THE MOROCCAN RBSMR REGISTRY

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Objectives: The aim of this study was to calculate direct costs amount in rheumatoid arthritis (R.A) patients in the Moroccan register of biologicals RBSMR registry.

Methods: Patients in the Moroccan register of biologicals RBSMR registry with available 1-year data were included. Variables related to socio-economic status, disease and biological therapy were collected. Direct costs included prices of biologics, costs of infusions, and subcutaneous injections. Biologic use and costs were compared.

Results: 197 patients data (female sex (86,8%), mean age (52,3± 11 years), illiteracy (45,7%)) were analyzed. The median annual direct costs per patient were €1,665 [€1,472 - €9,879]. For all patients, the mean annual direct costs per treated patient for each biological agent is presented in Figure 1.

The total annual direct costs of biological agents in the RBSMR registry were 978 494 €. Rituximab was given to 67% of patients and constituted 25.7% of the total annual budget. TNF-blockers and Tocilizumab were prescribed in 14.2% and 18.8% of cases and represented respectively 27.3% and 47% of this overall budget.

Conclusion: This study presents a global overview of the direct costs of biological therapy associated with RA patients, taking as a source the Moroccan registry of biological therapies in rheumatic diseases. Those results show that overall cost of biological agents according to the Moroccan register is very high. There is a real need for development of strategies for better governance of those costs.

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Epidemiology, risk factors for disease or disease progression

AB0812

BIOMARKERS FOR CONNECTIVE TISSUE DISEASE-ASSOCIATED INTERSTITIAL LUNG DISEASE: A PILOT STUDY

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Background: Connective tissue disease (CTD)-associated interstitial lung disease (ILD) has high morbidity and increased mortality risk. Biomarkers that can predict prognosis and response to therapy have been studied in recent years, including cytokines, chemokines, adhesion molecules, growth factors, extracellular remodelling molecules and pneumocyte associated proteins. However, there is still a knowledge gap for interpreting biomarkers in the context of imaging and response.

Objectives: The aim of our study was to identify biomarkers that are associated with inflammatory and fibrotic changes over time on high-resolution computed tomography (HRCT) and response to treatment in CTD-ILD.

Methods: An exploratory set of 38 biomarkers were measured in serum of patients with CTD-ILD using a multiplex immunoassay, chemiluminescence enzyme immunoassay and enzyme-linked immunosorbent assay. Samples were taken at baseline and one year of follow-up. Clinical data was extracted from electronic medical patients records. Two experienced chest radiologists independently and blindly reviewed the HRCTs. A third expert reviewed the scan in case of discrepancies. They classified ILD patterns according to the classification for idiopathic interstitial pneumonia and categorised into fibrotic or inflammatory. Association between biomarkers at baseline and pulmonary function test (PFT) and HRCT changes in response to treatment were analysed by logistic regression. Responsiveness of biomarkers to treatment was determined using the paired Wilcoxon sign rank test. Correlations between the variation of biomarkers and PFT after one year of treatment were examined using Spearman's rank correlation coefficient.

Results: Sixteen patients were included (12 females (75.0%), median age 51 years (IQR 45–62). Underlying CTDs were systemic sclerosis (n=5), Sjogren's syndrome (n=1), inflammatory myopathies (n=6), rheumatoid arthritis (n=1), systemic lupus erythematosus (n=1), mixed connective tissue disease (n=1), and undifferentiated connective tissue disease (n=1). There were three patients with a fibrotic HRCT pattern and 13 patients with an inflammatory HRCT pattern.

Biomarkers attenuation in CXCL11, CTGF, and KL-6 were associated with inflammatory HRCT patterns as well as less HRCT progression and fewer FVC decline. Furthermore, a decrease in CTGF was observed in patients treated with MMF and corticoids, while a reduction in CXCL11 and SPD were seen in patients treated with hydroxychloroquine. (Table 1) Additionally, an increase in levels of galectin-3 at one-year follow-up was associated with improved predicted FVC (Rho 0.5, p=0.048). (Figure 1)

Table 1. Biomarker responses to clinical treatment

Treatment	Biomarkers	Baseline, Median (IQR)	Follow up, Median (IQR)	Variation percentage	p
MMF (n=7)	CTGF (pg/ml)	110.69 (63.21–158.06)	4.73 (4.73–45.3)	-95.73	0.036
	sVCAM (pg/ml)	2061300 (1939200–3042250)	1767600 (1707100–1986350)	-14.25	0.031
HCQ (n=6)	CXCL11 (pg/ml)	699.30 (392.50–764.50)	333.39 (223.1–487.92)	-52.33	0.031
	SPD (ng/ml)	18.70 (13.40–28.73)	16.80 (11.70–22.80)	-10.16	0.031
Steroid (n=11)	CTGF (pg/ml)	81.93 (20.80–158.06)	12.76 (4.73–56.74)	-84.43	0.044
	MMP-7 (pg/ml)	3146.3 (1779.7–3997.0)	4563.3 (2951.9–7625.8)	45.04	0.005

IQR, interquartile range; MMF, mycophenolate mofetil; HCQ, hydroxychloroquine; CTGF, connective tissue growth factor; sVCAM, soluble vascular cell adhesion molecule-1; SPD, surfactant protein D; MMP-7, matrix metalloproteinase 7.

Conclusion: In this pilot study, CXCL11, CTGF, and KL-6 reduction were associated with inflammatory HRCT patterns and better pulmonary outcome. In contrast to previous research in severe ILD, there was a positive correlation between changes of Galectin-3 and FVC in our study. Further research in a larger group and focusing on combining biomarkers to predict outcome and prognosis are needed.

Figure 1.

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AB0813

DEVELOPING SARCOPENIA IS A RISK FACTOR FOR FRACTURES IN PATIENTS WITH RHEUMATOID ARTHRITIS: 4-YEAR DATA FROM THE CHIKARA STUDY

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Background: Patients with rheumatoid arthritis (RA) tend to have sarcopenia due to decreased muscle mass and function. We previously reported that 13.2% of RA patients without sarcopenia at baseline developed sarcopenia over a year using data from the prospective, observational CHIKARA study.

Table 1. Characteristics of 77 RA patients by sarcopenia status at baseline and at 4-year follow-up.

	no development (n=48)	development (n=6)	cured (n=10)	persisted (n=13)	p value
Baseline					
age, years	64.5 (57.8, 72)	70.0 (65.5, 72.3)	61.0 (54.5, 68.3)	72 (68, 81)	0.062
disease duration, years	4.6 (1.1, 9.9)	11.7 (2.8, 18.9)	8.1 (4.2, 14.3)	4.0 (2.2, 7.7)	0.427
biologics use, %	37.5	16.7	30.0	23.1	0.617
GC use, %	27.1	16.7	10.0	23.1	0.678
MMP-3, ng/ml	66.8 (51.8, 103)	52.5 (40.0, 56.7)	82.8 (57.8, 186)	157.5 (90.8, 250)	0.001
DAS28ESR	3.43 ± 0.87	3.48 ± 1.32	3.36 ± 1.08	3.80 ± 1.27	0.661
mHAQ	0.31 (0, 0.50)	0.19 (0.03, 0.44)	0.38 (0, 0.84)	0.50 (0.25, 0.88)	0.383
BMI, kg/m ²	23.4 ± 3.6	21.6 ± 2.4	19.2 ± 1.6	19.5 ± 2.6	<0.001
SMI, kg/m ²	6.8 ± 0.8	6.2 ± 0.6	5.8 ± 0.5	5.7 ± 0.6	<0.001
fat percentage, %	30.4 ± 8.4	29.1 ± 9.1	23.9 ± 4.0	25.1 ± 8.3	0.046
estimated bone mass, kg	2.2 (2.0, 2.4)	1.9 (1.8, 2.1)	2.0 (1.7, 2.1)	1.7 (1.7, 1.9)	0.012
BMR, kcal	1100 (1031, 1197)	1029 (918, 1070)	1012 (917, 1057)	934 (894, 1006)	0.005
Change during 4 years					
ΔDAS28ESR	-0.34 ± 0.97	-0.52 ± 0.98	-0.60 ± 1.46	-0.56 ± 1.14	0.834
ΔmHAQ	0 (-0.25, 0.16)	0.19 (0, 0.56)	-0.06 (-0.44, 0.94)	0 (-0.38, 0.38)	0.357
ΔSMI, kg/m ²	0.0 ± 0.3	-0.6 ± 0.3	0.3 ± 0.4	-0.0 ± 0.3	<0.001
fall, %	43.8	83.3	30.0	23.1	0.079
fracture, %	14.6	83.3	20.0	23.1	0.002

Data are shown as mean ± standard deviation (SD) or median (25th, 75th percentile). GC: glucocorticoids, BMI: body mass index, SMI: skeletal muscle mass index, BMR: body metabolism rate.

Objectives: The aim was to investigate sarcopenia status and the characteristics of RA patients longitudinally.

Methods: Body composition, laboratory data, disease activity, physical function, treatment, and history of falls and fractures were investigated in 100 RA patients who participated in the CHIKARA study at baseline and at 4 years. The patients were divided into 4 groups depending on their sarcopenia status: no sarcopenia development (N group), sarcopenia development (S group), cured (C group), and persisted (P group).

Results: Of the 77 RA patients who completed the survey, 48 were in the N group; their body mass index, skeletal muscle mass index, fat percentage, estimated bone mass, and body metabolism rate at baseline were significantly elevated. On the other hand, 6 patients were in the S group; 83.3% of them experienced fractures during the 4 years, significantly more than in the other groups. Ten patients were in the P group, and their baseline MMP-3 was significantly higher than in the other groups. Thirteen patients were in the C group. There were no differences among the 4 groups in disease activity and physical function (Table 1).

Conclusion: Overall, 78% of RA patients developed sarcopenia during the 4-year follow-up period, and they developed fractures more frequently. Evaluation of sarcopenia is important for risk assessment of fractures.

REFERENCES:

[1] Y Yamada, M Tada, K Mandai et al. Glucocorticoid use is an independent risk factor for developing sarcopenia in patients with rheumatoid arthritis: from the CHIKARA study. Clin Rheumatol 2020 Jun;39(6):1757-1764.

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AB0814

PREGNANCY COURSE ASSESSMENT IN PATIENTS WITH RHEUMATIC DISEASES COMPARED TO CONTROLS

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Background: Rheumatic diseases such as rheumatoid arthritis (RA) and spondyloarthritis (SA) may occur among women of childbearing age. Adverse events during pregnancy including disease flare, preterm delivery, and neonatal or fetal death have been reported.

Objectives: Our aim was to assess the impact of rheumatic diseases on the course of pregnancy.

Methods: We conducted a cross-sectional study involving patients with RA (2010 ACR/EULAR criteria) and SA (2009 ASAS criteria) (study group) as well as healthy controls (control group) matched by age and gender. All women included had at least one pregnancy. Data were collected through telephonic interviews. We used the Student t test to compare the study group and the control group.

Results: We enrolled 57 patients (30 RA and 27 SA) and 57 controls. The mean age in the study and the control groups were respectively 43.2 ± 8.2 years [26-48] and 37.5 ± 6 years. The mean chronic inflammatory rheumatism duration was 13.81 ± 6.2 years. A history of primary sterility was found in 3 patients (1 RA and 2 SA) and none in the control group. The mean age during the first pregnancy was significantly higher in the study group (28 ± 6.2 years versus 24 ± 7 years in the control group) (p=0.01). Eight patients (5 RA and 3 SA) had a history of spontaneous miscarriage. A terminated pregnancy was noted in 3 patients (1 RA and 2 SA). Complications during pregnancy in the study group were gestational diabetes (0.3%), premature delivery (0.3%), premature rupture of membranes (0.3%), abortion threat (0.3%) and pre-eclampsia (6%). Pregnancy was more associated with complications in the study group (p=0.05). Cesarean section was more used in the study group (28 patients versus 9 in the control group; p= 0.00). The main indications of cesarean section in the study group were macrosomia (11 patients), scar uterus (6 patients), sacroiliitis (4 SA patients), twin pregnancy (2 patients), and undetermined reasons (6 patients). Fetal presentation in the study group was the seat presentation (3%), top presentation (4%), face (2%), and forehead presentation (0.3%) with no significant difference with the control group. Complications of childbirth in the study group were hemorrhage of delivery (10.3%), cord widening (6.6%), perinatal asphyxia (4.9%), and dystocia (1.9%). However, no statistically significant differences were found between the two groups in the prevalence of complications of childbirth. During pregnancy, 5 patients were on salazopyrine, 2 on corticosteroids and, 1 on non-steroidal anti-inflammatories.

Conclusion: Our study showed that pregnancies with rheumatic diseases were at increased risk of having maternal complications and adverse neonatal outcomes.