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Figure 4. the frequency of different ocular manifestations in RA. A) Dry Eye, B) Episcleritis, C) Glaucoma, D) scleritis

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SHORT-TERM INFLAMMATORY AND LIPIDS CHANGES IN RHEUMATOID ARTHRITIS PATIENTS INFLUENCE CARDIOVASCULAR RISK ALGORITHMS: A MONOCENTRIC RETROSPECTIVE STUDY

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Background: Chronic inflammation may change lipid profile, thus current EULAR recommendations for cardiovascular (CV) management in polyarthritis suggest to assess cholesterol status when disease activity is stable or in remission¹. To date it is still unclear whether inflammation mediated changes in lipids profile could impact on CV risk algorithms and what score should be considered the reference one for any disease activity status.

Objectives: The aim of this study was to evaluate the influence of lipid profile, disease activity and inflammation modifications on four CV risk calculators during Treat to Target strategy with biologic agents.

Methods: In this monocentric study we retrospectively evaluated all data recorded from Rheumatoid Arthritis (RA) patients with moderate/high CDAI disease activity, who had started for the first time and maintained a bDMARD agent for at least 6 months, in our Outpatient Clinic from the 1st January 2010 to 31st December 2017. Patients with a prior CV event have been excluded from the analysis. For each patient, we assessed the CV risk in a short time period (within 6 months) to estimate the specific weight of lipids and disease activity related variables, using the Italian CV "Progetto Cuore" score², the QRISK3-2018 score³, the Reynolds Risk Score (RRS)⁴ and the Expanded Risk Score in RA (ERS-RA)⁵. The results of the "Progetto CUORE" and RRS algorithms were multiplied by 1.5, in accordance to the EULAR recommendations for algorithms that do not include specifically RA among variables. Wilcoxon signed-rank test was used to compare CV risk scores during follow-up.

Results: One-hundred thirteen RA patients (female n. 86 (76.8%), mean age (SD) 52.8 (12.9) years, median disease duration (IQR) 26 (13-72) months) were eligible for the analysis. CDAI and C-reactive protein levels decreased significantly either at 3 and 6 months follow-up (p<0.001). At 3 months, we observed a statistically significant increase in mean total cholesterol (TC) from 197.3±38.2 mg/dl to 205.8±37.3 mg/dl (p<0.01), which returned close to baseline levels at 6 months (201.1±34.5 mg/dl - p=0.22 vs baseline). High density lipoprotein (HDL), TC/HDL ratio and triglycerides changes did not reach the statistical significance. The estimated CV risk assessed by the "Progetto Cuore" and QRISK3-2018 did not change during the 6 months' follow-up. RRS showed a decrease either at 3 and 6 months (p=0.04). Similarly, ESR-RA highlighted a decrease of CV risk either at 3 and 6 months (p<0.01) (see Table I).

Conclusion: All evaluated "Scores" are not influenced by short term lipid changes observed during bDMARDs treatment, being applicable at any status of disease activity. Interestingly, the RRS and ESR-RA scores, evaluating RA inflammatory items, are susceptible to disease activity changes. These results should be taken into account by rheumatologists choosing a CV risk algorithm in daily clinical practice.

	Baseline	3-month followup	6-month followup
CRP	7.2 (3-14)	3 (1.6-7.4)**	3.9 (2.4-6.5)**
CDAI	15 (8.1-25)	6 (1-12)**	4 (1-9)**
TC (SD)	197.3 (38.2)	205.8 (37.3)**	201.1 (34.5)
HDL (SD)	60.9 (26.9)	62.9 (15.9)	61.8 (15.5)
TC/HDL ratio (SD)	3.4 (1.1)	3.4 (0.9)	3.4 (0.9)
Triglycerides (SD)	112.3 (78.2)	110.1 (60.9)	108.3 (53.1)
"Progetto Cuore"	2.8 (0.7-7.5)	2.8 (0.7-8.1)	2.6 (0.7-7.8)
QRISK3-2018	7.8 (2.4-14.9)	7.6 (2.5-14.2)	7.4 (2.2-14.4)
ERS-RA	6.9 (3.2-15.2)	6.4 (2.8-13.7)**	5.10 (1.2-13.7)**
RRS	3.0 (1.5-8.25)	3.0 (1.5-7.5)*	3.0 (1.5-7.5)*

Values expressed as median (IQR). SD: standard deviation. CRP: C-reactive protein. CDAI: Clinical Disease Activity Index. TC: Total cholesterol. HDL: high density lipoprotein. ERS-RA: Expanded Risk Score in Rheumatoid Arthritis. RRS: Reynolds Risk Score.

*p<0.05; **p<0.01 vs baseline

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