REFERENCES:

- [1] Turner M, Diaz-Munoz MD. RNA-binding proteins control gene expression and cell fate in the immune system. *Nat Immunol* 2018.
- [2] Ross EA, Naylor AJ, O'Neil JD, et al. Treatment of inflammatory arthritis via targeting of tristetraprolin, a master regulator of pro-inflammatory gene expression. *Ann Rheum Dis* 2016.
- [3] Joosten LA, Leoni F, Meghji S, Mascagni P. Inhibition of HDAC activity by ITF2357 ameliorates joint inflammation and prevents cartilage and bone destruction in experimental arthritis. *Mol Med* 2011.
- [4] Vojinovic J, Damjanov N, D'Urzo C, et al. Safety and efficacy of an oral histone deacetylase inhibitor in systemic-onset juvenile idiopathic arthritis. *Arthritis Rheum* 2011.

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SAT0026

DIFFERENTIAL LEVELS OF IL-7 EXPRESSION IN ADVENTITIA OF NON-RA AND RA PATIENTS WITH CORONARY ARTERY DISEASE

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Background: Rheumatoid Arthritis (RA) patients have increased cardiovascular risk due to accelerated atherosclerosis (ATS), which significantly contributes to excess mortality in RA¹. The increased cardiovascular risk cannot be fully explained by traditional risk factors and systemic chronic inflammation appears to play a crucial role. Interestingly, IL-7, a proinflammatory cytokine involved in RA pathogenesis, appears to play a role also in atherosclerosis² but its effect on cardiovascular disease (CVD) in RA has not been studied yet.

Objectives: To examine serum IL-7 levels and expression of IL-7, IL-7R, CD3 and CD20 in aortic adventitia of RA and non-RA patients with coronary artery disease (CAD) and to search for relationships between systemic IL-7 levels and expression of vascular markers, cardiovascular risk factors including metabolic and inflammatory markers.

Methods: We examined 19 RA patients and 20 non-RA patients undergoing coronary artery bypass graft surgery included in the Feiring Heart Biopsy Study. Serum IL-7 levels were measured by chemiluminescence (MSD). Biopsies from the adventitia of thoracic aorta from a subset of patients (12 RA and 14 non-RA) were stained for IL-7, IL-7R, CD3 and CD20 by immunohistochemistry and scored per mm² of tissue.

Results: Non-RA patients had lower IL-7 serum levels than RA (3.4±3.3 vs. 6.7±3.5, p<0.05). Independently of RA diagnosis, IL-7 significantly correlated with CRP (rho=0.450, p=0.008), triglycerides (TG, rho=0.566, p=0.005), glucose (rho=0.642, p=0.001) and hypertension (p=0.036). Levels of IL-7 were associated with New York Heart Association class (rho=0.429, p=0.014) and this was stronger in non-RA patients (rho=0.577, p=0.010). No associations were found with smoking or markers of CVD severity (i.e. numbers of arteries with significant stenosis or number of previous myocardial infarcts (MI)).

The number of IL-7 + and IL-7R+cells/mm² in adventitia were significantly higher in RA (134.2±45.5 and 144±49.9 respectively) than non-RA patients (46.9±22.8 and 54.4±20.2, p<0.005) and were associated with serum IL-7 levels (rho=0.551 and rho=0.588, p<0.01). Both IL-7 + and IL-7R+cells were associated with a positive history of MI (p=0.047 and p=0.005) and IL-7R+cells with the number of previous MIs (rho=0.408, p=0.038). Only in RA patients, IL-7R+cells showed a trend for correlation with TG (rho=0.771, p=0.072). IL-7 + and IL-7R +cells correlated with CD3 (rho=0.688, p=0.013 and rho=0.630 p=0.028), but no correlation was found with CD20. Cholesterol and HDL levels were associated with IL-7 +cells only in non-RA patients (rho=0.729 p=0.04 and rho=0.733, p=0.038).

Conclusions: Among patients with CAD, those with RA had higher serum IL-7 and a greater expression of both IL-7/IL-7R in aortic adventitia. Systemic levels of IL-7 were related to its vascular expression. Thus, the IL-7/IL-7R axis may play a role in the accelerated atherogenesis observed in RA; further studies are needed to elucidate the precise role of IL-7 and impact of potential IL-7R blockade in CV risk in RA.

REFERENCES:

- [1] Kaplan MJ. *Curr. Opin. Rheumatol* 2006;18(3):289–297.
- [2] Damás JK, et al. *Circulation* 2003;107(21):2670–2676.

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SAT0027

CO-EXPRESSION OF RECEPTORS TO TNFA AMONG NAIVE T-CELLS AND MEMORY T-CELLS IS ALTERED IN RHEUMATOID ARTHRITIS AND THE CHANGES CORRELATE WITH DISEASE ACTIVITY

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Background: Changing the ratio of TNFα receptors of different types can lead to shift in the balance between pro-apoptotic and proliferative signalling pathways which is crucial for rheumatoid arthritis (RA) inflammatory processes.

Objectives: To study the level of expression of type 1 and 2 receptors for TNFα (TNFR1/TNFR2) on individual subpopulations of peripheral blood actively involved in immunopathological processes in RA

Methods: The study included 20 healthy donors aged 18–60 years (11 men (55%)) and 36 RA patients with high (n=14), medium (n=15) and low (n=7) disease activity at the age of 22–77 years (31 women (86, 1%)). Co-expression and number of type 1 and 2 receptors for TNFα were calculated for monocytes, B-cells, T-cells, as well as among: cytotoxic T-cells (CD8+), T-helper cells (CD4+), activated CD8 +cells, activated CD4 +cells, memory T-cells (CD45RO+) and naive T-cells (CD45RA+) from cytotoxic and T-helper cells, and T-regulatory cells (CD4 +CD25highCD127low) by flow cytometry analysis (BD FACSVerse, USA).

Results: Seven indicators of receptor expression were revealed, which differed in patients with RA with high disease activity in comparison with HD, and didn't differ between HD and patients with low disease activity. These were 4 indicators on the number of receptors on cells and 3 cell percentages with specific combinations of expressed. The association between disease severity and activity indexes (DAS-28 index, disease duration, X-ray stage, activity stage, RF level, ASCP and C-RB, systemic manifestations and erosive arthritis) and parameters of TNFα receptor expression on immunocompetent cell subpopulations were studied. The following associations were revealed: RF level positively correlated with the percentage of double-positive TNFR1 +TNFR2+cells among naive and memory T-cells for both T-helpers and cytotoxic T-cells (r levels from 0.62 to 0.68 with p<0.05); the level of C-reactive protein positively correlated with the percentage of cells carrying only receptor type 1 among all the T-lymphocyte subpopulations studied (r levels from 0.73 to 0.9 with p<0.05); the presence of systemic manifestations is negatively correlated with the number of receptors of both types 1 and 2 on naive T-helper and cytotoxic cells (r levels from –0.63 to –0.74 with p<0.05).

Conclusions: The active inflammatory process in rheumatoid arthritis with DAS28 >5.1 is accompanied by a change in the ratio of cells with different variants of co-expression of receptors to TNFα among populations actively involved in the pathological process (naive T-cells and memory T-cells among T-helpers and cytotoxic T-cells). The selected parameters will be used to construct and verify the predictive models of response to therapy of different subclasses

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