AB0133

EXPRESSION OF PRO-RESOLVING SPECIALISED MEDIATORS' RECEPTORS IN RHEUMATOID ARTHRITIS

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Background: Inflammation is the physiologic response against noxious stimuli to restore homeostasis and tissue repair. At the initial phase, characterised by an increase in pro-inflammatory cytokines aiming to neutralise the tissue injury, the resolution process must follow to down-regulate the inflammation and to promote the tissue repair. That latter phase is driven by the so called Pro-Resolving Specialised Mediators (SPMs), such as Resolvin (RvD and RvE), Protectins, Maresins and Lipoxin A4 (LXA4), bioactive metabolites of omega-3 fatty acids that act by interacting with specific cellular receptors: CMKLR1 and BLT1 for RvE1, FPR2 and GPR32 for RvD1 and FPR2 for LXA4. In rheumatoid arthritis (RA) the reactive inflammation becomes persistent and the innate immune response turns into the adaptive immune activation. Nowadays there is no evidence whether SPMs are involved in RA pathogenesis.

Objectives: Purpose of this study was to evaluate the expression of CMKLR1, FPR2 and BLT1 in RA patients and to correlate it to the disease activity.

Methods: Patients affected with RA, according to the 2010 EULAR/ACR classification criteria, were enrolled in this study. Exclusion criteria were: minority age, status of pregnancy or breastfeeding, concomitant any other autoimmune disease. At entry, ESR, CRP, DAS28-ESR, CDAI, Health Assessment Questionnaire Disability Index (HAQ) and peripheral venous blood sample were collected. Based on DAS28-ESR, patients were divided into high-moderate (H-Mo/RA if DAS28-ESR ≥ 3.2) and low-remission (L-Rem/RA if DAS28 < 3.2) disease activity group. The expression of CMKLR1, FPR2 and BLT1 in peripheral T cells (CD3) and monocytes (CD14) was evaluated by flow-cytometry assay. Differences for continuous variables were evaluated using the Mann-Whitney test, while for categorical data the Fisher's probability test. Correlations were assessed using the Spearman test.

Results: Thirty RA patients, 21 H-Mo/RA and 9 L-Rem/RA, were studied. While no difference in the expression of CMKLR1, FPR2 and BLT1 in CD3-T cells between the 2 groups was found, SPMs receptors were differently expressed on CD14-monocytes. BLT1⁺CD14⁺ cells were significantly higher in L-Rem/RA (90,96%) than in H-Mo/RA/RA (56,70%) ($p: 0.0001$). Likewise, FPR2⁺CD14⁺ cells were significantly higher in L-Rem/RA (92,29%) than in H-Mo/RA/RA (79,94%) ($p: 0.01$). CMKLR1 expression in monocytes was not regulated by disease activity. We also demonstrated an inverse correlation between BLT1 level in monocytes and ESR ($p: 0.01$), CRP levels ($p: 0.008$), DAS28-ESR ($p: 0.03$), CDAI ($p: 0.0076$) and HAQ ($p: 0.0138$) and a weak correlation between FPR2 expression and HAQ ($p: 0.05$) (figure 1).

Abstract AB0133 – Figure 1. Statistically significant correlation between the expression of FPR2 or BLT1 in monocytes and different parameters such as ESR ($p: 0.0166$; $r: -0.434$), CRP ($p: 0.0084$; $r: -0.4726$), DAS28-ESR (0.0318 ; $r: -0.3927$), CDAI ($p: 0.0076$; $r: -0.4936$) and HAQ (FPR2: $p: 0.05$; $r: -0.4438$; BLT1: $p: 0.0138$; $r: -0.5169$).

ESR: Erythrocyte Sedimentation Rate; CRP: C-Reactive Protein; DAS28-ESR: Disease Activity Score of 28 joints; CDAI: Clinical Disease Activity Index; HAQ: Health Assessment Questionnaire Disability Index. P -value < 0.05 was considered statistically significant.

Conclusions: In this study, FPR2 and BLT1 expression seem to be regulated by the activity of RA disease. As FPR2 and BLT1 should be involved in down-regulating the inflammation by monocytes, it might be hypothesised that a defective signalling through these SPMs receptors may contribute to sustain chronic inflammation in active RA. However, further studies are needed to explore the intricate mechanisms beyond inflammation and its resolution.

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AB0134

PHOSPHORELATED STAT3 EXPRESSION IN PERIPHERAL BLOOD MONONUCLEAR CELLS IN RHEUMATOID ARTHRITIS

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Background: The JAK-STAT pathway is mainly involved in the regulation of the expression of cytokines and growth factors; so it controls the proliferation, differentiation, migration and death of the cells of the immune system. In patients with RA, studies have shown increased activation of STAT3 with undergoes phosphorylated (pSTAT3), probably due to increased levels of cytokines such as IL-6, IL-11, IL-12.

Objectives: This study aims at investigating the level of expression of STAT3 and pSTAT3 in peripheral blood lymphomonocytes cells of patients with Rheumatoid Arthritis (RA), correlating them with disease activity (ESR, CRP, clinimetric tests).

Methods: Patients affected with RA, according to the 2010 EULAR/ACR classification criteria, were enrolled in this study. Exclusion criteria were: minority age, status of pregnancy or breastfeeding, concomitant any other autoimmune disease. At entry (new treatment with csDMARDs or biological drugs) ESR, CRP, DAS28-ESR, CDAI and peripheral venous blood sample were collected. The expression of STAT3 and pSTAT3 in lymphomonocytes cells, CD4 and CD14 cells were evaluated by flow-cytometry assay. The level of STAT3 gene was studied by qPCR. Differences for continuous variables were evaluated using the Mann-Whitney test, while for categorical data the Kolmogorov-Smirnov test. Correlations were assessed using the Spearman test.

Abstract AB0134 – Figure 1

Results: Twenty RA patients were studied, comparing STAT3 and pSTAT3 levels with 9 seronegative arthritis patients (SA) and 8 healthy control (HC). While no difference in the expression of STAT3 levels between the 3 groups (in flow-cytometry and qPCR assays), pSTAT3 was higher in RA (9,5%) than in SA (2,74%) ($p:$