hospitalization was performed (n = 14). The first group included 6 patients who retained low disease activity during 1 month follow-up (RA, stabilization). The second group consisted of 8 patients who had exacerbation during follow-up period. As a control group, we used data from 43 comparable healthy donors. Subsets of T regulatory cells and monocytes were studied. A comparison was made among the indicators of receptors number and proportion of cells expressing the corresponding receptor.

**Results:** For T regulatory cells, the key differences for patients who did not retain low disease activity were significantly higher number of TNF type 1 and type 2 receptors on double-positive cells with a lower percentage of these cells compared to stable patients. At the same time, higher differences between proportions of double-positive cells in comparison with control values of healthy donors were associated with higher probability of maintaining in remission. For monocytes, the key differences in stable patients were the very high quantitative expression of type 1 receptors on double-positive cells, with a lower percentage of these cells compared to patients with exacerbation. At the same time, lower differences between proportions of double-positive cells in comparison with control values of healthy donors were associated with higher probability of maintaining in remission.

**Conclusion:** Obtained data confirm the previously proposed hypothesis about the essential role of balance in quantitative expression of TNF receptors type 1 and 2 on double-positive cells to determine the intensity and type of cell response to the mediator and its association with the level of disease activity and response to therapy.

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**POS0502**

**WHAT IS THE ROLE OF VITAMIN D STATUS IN DISEASE ACTIVITY IN RHEUMATOID ARTHRITIS PATIENTS TREATED WITH bDMARDs? – DATA FROM A RHEUMATOLOGY CENTER**

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**Background:** Vitamin D is a fat-soluble vitamin, mainly involved in the regulation of calcium metabolism, and it has gained increasing interest in recent years because of its potential role in immunomodulatory activity. Recent data suggest that it is negatively associated with disease activity in rheumatoid arthritis (RA), however this is not yet fully understood.

**Objectives:** This study’s aim was to investigate if there is any correlation between vitamin D serum levels at baseline, before taking the first biological disease-modifying antirheumatic drug (bDMARD), and at 6 months after, with disease activity in a cohort of RA patients.

**Methods:** This is a cross-sectional study, including all the rheumatoid arthritis patients taking the first bDMARD with evaluation of the vitamin D status at baseline and 6 months after biologic therapy at our Rheumatology Department and registered in the national database (Reuma.pt).

Demographic, clinical and laboratory characteristics and disease activity measures were collected from the baseline visit and the visit after 6 months of treatment with the first biological. For the statistical analysis, two groups were defined based on the serum levels of 25(OH) vitamin D, considering the most common cut-off of 30 ng/mL. For comparison analyses between groups, chi-square test was used for categorical variables and Mann-Whitney U and T-tests were applied for continuous variables.
Results: Seventy-seven patients were included, 58 (75.3%) were females; the mean age was 54.24 ± 11.0 years and seropositivity was found in 65 (84.4%) for anti-citrullinated protein antibodies and in 58 (75.3%) for rheumatoid factor. The first bDMARD most commonly prescribed were etanercept (28.6%) and rituximab (26%). Regarding the vitamin D status at baseline, the mean serum level for 25(OH) vitamin D was 28.35 ± 18.21 ng/mL, with the majority of patients having vitamin D insufficiency (25(OH) vitamin D < 30 ng/mL) (63.6%). After 6 months of treatment with the first bDMARD, disease activity measures showed that remission or low activity were achieved in 29.9% of the patients, using DAS28 criteria; in 42.9% and 46.8%, according CDAI and SDAI criteria, respectively. Vitamin D serum levels at 6 months were 26.81 ± 11.72, with the majority of patients still with vitamin D insufficiency (62.3%).

At baseline, patients with vitamin D insufficiency had greater patient VAS (79.00 ± 19.14 vs 71.71 ± 21.95), greater erythrocyte sedimentation rate (ESR) (40.67 ± 23.17 vs 32.46 ± 26.09) and greater Health Assessment Questionnaire (HAQ) score (1.35 ± 0.662 VS 1.34 ± 0.705), although without statistical significance. However, when comparing CRP levels at 6 months, it achieved statistical significance with the Mann-Whitney U-test (1.05 ± 1.79 VS 1.41 ± 5.22; p = 0.028). The same tendency was confirmed when analyzing vitamin D levels at 6 months. Patients with vitamin D insufficiency presented greater patient VAS (55.33 ± 28.82 vs 42.86 ± 28.28), greater ESR (26.19 ± 21.57 vs 21.00 ± 20.38) and greater HAQ score (1.35 ± 0.662 VS 1.34 ± 0.705), although without statistical significance. However, it did achieve statistical significance when comparing baseline DAS28 and HAQ (5.60 ± 0.91 VS 5.38 ± 1.31; p = 0.013 and 1.76 ± 0.53 VS 1.59 ± 0.75; p = 0.007, respectively).

Conclusion: Our data failed to demonstrate a statistically significant association between vitamin D serum levels at baseline and at 6 months with disease activity in our RA sample. However, it revealed a positive trend of vitamin D insufficiency related to higher activity disease. Interestingly, it showed that vitamin D insufficiency after 6 months of bDMARD treatment is related to higher DAS28 and HAQ at baseline. Nonetheless, we insist it is of paramount importance to conduct larger studies to confirm these findings.

REFERENCES:

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