BASELINE VITAMIN D LEVELS AND DISEASE ACTIVITY AND RESPONSE IN PORTUGUESE PATIENTS WITH PSORIATIC ARTHRITIS UNDER bDMARD: DOES IT MAKE A DIFFERENCE?

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BACKGROUND

There is growing evidence that vitamin D (25(OH)D) plays an important role in maintaining skeletal health and modulating the immune system. Epidemiological data indicate that vitamin D deficiency is common in immune-mediated rheumatic diseases, especially in rheumatoid arthritis, but there is little data regarding its association with disease activity and response to therapy in patients with psoriatic arthritis (PsA) under bDMARD therapy. We aimed to assess whether 25(OH)D basal levels correlate with disease activity and clinical response to the first bDMARD, at six and 12 months of therapy, in a monocentric cohort of patients with PsA.

METHODS

This retrospective study was carried out on PsA patients from a rheumatology department of a tertiary hospital, fulfilling CASPAR criteria and registered in our national database (Reuma.pt), who started the first bDMARD since 2008. Demographic, clinical and laboratory criteria were evaluated at zero, six and 12 months of biologic therapy. Disease activity was assessed using CDAI, SDAI, DAS28(4V), BASDAI, ASDAS, DAPSA and the response was measured using the EULAR, BASDAI50, ASDAS, ASAS, ACR and PsARC responses. Correlations were made between absolute serum levels of 25(OH)D and continuous variables, as well as associations between different vitamin D cutoffs and disease activity measures and response criteria. Multiple linear and logistic regression analyses were performed to determine whether vitamin D is a predictor of disease activity and therapeutic response.

RESULTS

We included 81 patients, 41 (50.6%) females, with a mean age of 48.0 ± 11.7 years, a mean disease duration of 9.5 ± 7.4 years and a mean body mass index of 28.4 ± 5.2 kg/m². Thirteen (16.0%) were smokers. The mean 25(OH)D basal level was 25.5 ± 13.2 ng/mL, 21 (25.9%) had 25(OH)D basal levels ≥ 30 ng/mL and 31 (38.3%) ≤ 20 ng/mL. Sixty-two patients (76.5%) were under csDMARD therapy. Golimumab (29, 35.8%), etanercept (28, 34.6%) and adalimumab (10, 12.3%) were the most frequently prescribed bDMARDs. There were only very weak, albeit positive, correlations between 25(OH)D levels and measures of disease activity. The BASDAI50 response at 6 months was associated with higher basal 25(OH)D levels (29.5 ± 14.5 vs. 21.5 ± 10.2 ng/mL, $p = 0.013$); the ASAS20 (33.9 ± 15.9 vs. 24.2 ± 12.8 ng/mL; $p = 0.023$), ASAS40 (31.9 ± 14.6 vs. 25.0 ± 13.8 ng/mL; $p = 0.023$) and ASAS70 (47.0 ± 4.2 vs. 26.6 ± 14.2 ; $p = 0.027$) responses at 12 months were associated with higher basal levels of 25(OH)D; basal 25(OH)D levels were ≥ 30 ng/mL in a significantly higher proportion of patients who achieved CDAI (38.9 vs 10.5%; $p = 0.027$) and SDAI (38.9 vs 7.7%; $p = 0.008$) remission and ASDAS disease inactive (29.4 vs 7.3%; $p = 0.040$) at 1 year. In the regression models, basal levels of 25(OH)D were found to be predictors of good EULAR responders (OR = 1.315, 95% CI = 1.017–1.213; $p = 0.037$) at six months. Basal levels of 25(OH)D were not significantly different in patients who discontinued bDMARD and no significant correlations or associations were identified regarding more specific PsA activity measures, such as DAPSA and PsARC, nor were they predictive of these responses.

CONCLUSION

We can conclude that there is a global trend for an association between higher levels of vitamin D and lower measures of disease activity and better therapeutic responses to the first biologic. It was possible to find statistically significant associations with some disease activity measures and response criteria that, although primarily designed for other rheumatic diseases, are often used in PsA.

KEYWORDS

Vitamin D, bDMARD, Psoriatic arthritis, Disease activity.