

Vitamin D status in patients with rheumatoid arthritis: a correlation analysis with disease activity and progression, as well as serum IL-6 levels

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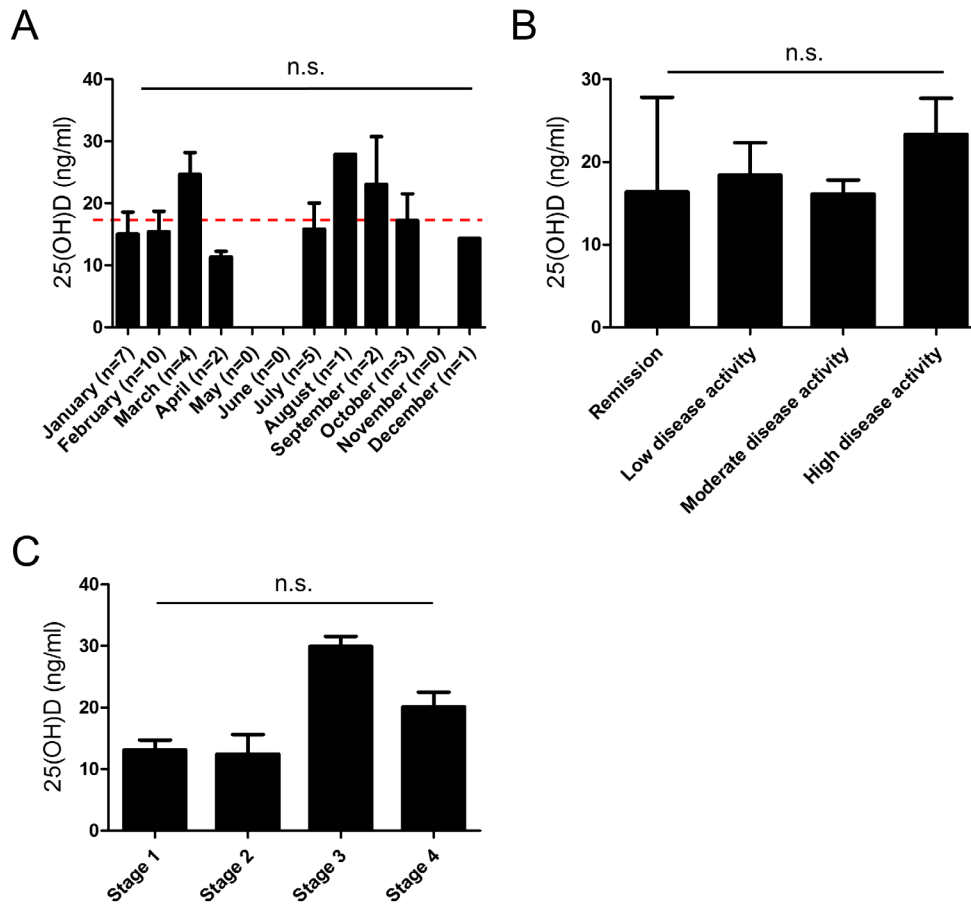
Objectives. Recent epidemiological studies suggested an association between a poor vitamin D [25(OH)D] status, inflammatory mediators, and rheumatoid arthritis (RA). We have recently proposed that pro-inflammatory interleukin 6 (IL-6) may represent a good marker for disease activity of RA. The aim of this study was to investigate the relationship between serum 25(OH)D levels and disease activity, joint damage, as well as serum IL-6 levels in a Polish RA population. **Materials and Methods.** Serum 25(OH)D levels were measured in 35 female RA patients and 38 age- and gender-matched healthy controls. Statistical correlations between 25(OH)D levels and the disease activity score 28 (DAS 28), joint damage based on the Steinbrocker criteria, as well as serum IL-6 levels were performed. **Results.** There was no statistically significant difference between levels of 25(OH)D in RA (16.89 ± 8.57 ng/ml) and healthy controls (14.12 ± 7.51 ng/ml), and the vitamin D deficiency (<20 ng/ml) was found in 71.43% of RA patients and 73.68 % of healthy controls. While vitamin D status did not correlate with DAS 28 ($r = 0.265$, $p = 0.149$) and joint damage based on the Steinbrocker criteria ($r = 0.367$, $p = 0.065$), a positive correlation between 25(OH)D and IL-6 ($r = 0.537$, $p = 0.002$) was observed in RA. **Conclusion.** Although further studies on a larger group of patients will be needed to confirm the data presented here, it seems that hypovitaminosis D is common in the RA patients and middle-aged non-RA healthy women in the Polish population. 25(OH)D levels were similar in the RA patients and age- and gender-matched healthy controls, and were not associated with joint damage and disease activity in patients.

Key word: rheumatoid arthritis, vitamin D deficiency, 25(OH)D, IL-6

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Abbreviations:



Supplementary Figure 1. Serum samples of RA patients were collected throughout the whole year and some insignificant fluctuations in 25(OH)D levels over a specific period of a year have been observed.

Dashed line represents mean value (A). Serum level of vitamin D in RA patients is categorized based on the disease's activity score (B) or the Steinbrocker radiographic criteria (Stage 1–4) (C). Data are expressed as mean \pm S.E.M. and the one-way ANOVA was used for statistical analysis. n.s., not significant.