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**VITAMIN D3 DEFICIENCY IN PATIENTS
WITH PSORIATIC ARTHRITIS AND RELATIONSHIP WITH
THE DISEASE MANIFESTATIONS**

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In rheumatology practice it is hard to find a disease where vitamin D deficiency has not been involved in the pathogenesis and the outcome in some extent. Murdaca G. et al. analyzed over 130 studies in order to find a correlation between vitamin D levels and its effect on several autoimmune diseases. The analysis demonstrated relationship between vitamin D and the development of several autoimmune diseases such as systemic lupus erythematosus, thyrotoxicosis, type 1 diabetes, multiple sclerosis, iridocyclitis, Crohn's disease, ulcerative colitis, psoriasis vulgaris, seropositive rheumatoid arthritis, and polymyalgia rheumatica [1]. Recent comprehensive literature review Mohammed Saleh Al-Dhubaibi M.S. analyzed rigorously selected 20 studies included 2046 psoriatic patients with or without arthritis and 6508 healthy controls. From these 14 studies are in favor of a positive correlation between Vitamin D deficiency and psoriasis, while remaining six studies do not depict a positive correlation. It was claimed that more studies are required that would show an accurate and effective role of vitamin D deficiency in psoriasis [2].

Objective was to assess serum vitamin D3 level of in patients with psoriatic arthritis (PsA) and explore possible relationship with the disease manifestations.

Methods. Sixty eight patients with psoriatic arthritis were evaluated, 21 female and 47 male. All have chronic plaque psoriasis with plaque size not less than 2 centimeters in diameter. The presence of PsA was diagnosed according to the CASPAR (Classification criteria for Psoriatic ARthritis, 2006) criteria [3]. Skin type was classified by T.B. Fitzpatrick [4, P. 869–871]. Thirty healthy subjects served as a control group. The severity of psoriasis was assessed according to the PASI (Psoriasis Area and Severity Index) [5, P. 238-244. 6, P. 381–387], and the severity of psoriatic arthritis according to the PASDAS (Psoriatic Arthritis Disease Activity Score) [7, P. 1212-1217. 8, P. 749-756. 9, P. 986-991]. Serum 25(OH)D level in the peripheral blood was determined by enzyme-linked immunosorbent assay using kits «DRG 25-OH Vitamin D», manufactured by DRG International, Inc., USA. Serum concentration of 25(OH)D was assessed according to the Global Consensus Recommendations on Prevention and Management of Nutritional Rickets (2016): sufficiency > 50 nmol / L, insufficiency $-30-50$ nmol / L, deficiency $- < 30$ nmol / L [10, P. 394–415].

Result. The average serum 25(OH)D level ($M \pm SD$) was significantly lower in patients with psoriatic arthritis comparing to control group ($34,1 \pm 9,7$) nmol /L vs ($41 \pm 12,6$) nmol /L, $p < 0,05$. The patients were divided into 2 groups depending on D3 level. Group 1 consisted of 29 (42,6 %) patients, with vitamin D3 deficiency and 39 patients (57,4 %) with vitamin D3 level > 30 nmol /L formed group 2, respectively. The average serum 25(OH)D level in group 1 was ($28 \pm 7,6$) nmol /L and in group 2 ($36 \pm 10,1$) nmol /L, $p < 0,05$. In group 1 there were 8 females (27,6 %) и 19 males and in the group 2 9 females (20,5 %) и 31 males, thus the groups were comparable by gender $p > 0,05$. However mean age ($M \pm SD$) in group 1 was higher ($51 \pm 11,2$) vs ($46 \pm 8,4$) years in group 2, $p < 0,05$. Duration of the disease from the first diagnosis was higher in group 1 ($18 \pm 5,1$) years and comparing to group 2 ($11 \pm 3,2$) years, $p < 0,05$. At the beginning of the first symptoms the patient age did not significantly differ ($29 \pm 4,7$) years in group 1 and ($28 \pm 4,2$) in group 2, $p < 0,05$. Among all patients skin type 2 and 3 by T.B. Fitzpatrick were found only, no difference between all groups. The severity of skin manifestations was higher in patients with vitamin D deficiency as confirmed by PASI, it was significantly higher in group 1 ($27,4 \pm 8,1$) vs ($18,6 \pm 5,2$) in group 2, $p < 0,05$. The severity of psoriatic arthritis was also higher in patients in group 1, PASDAS was ($4,1 \pm 1,3$) vs ($3,5 \pm 1,37$) in group 2, $p < 0,05$. Correlation analysis has shown negative correlation between serum 25(OH)D level and the disease duration ($r = -0,37$), as well as PASI ($r = -0,51$) and PASDAS indexes ($r = -0,42$), respectively.

Conclusions. In patients with psoriatic arthritis vitamin D3 deficiency was frequently found. There is a relationship between serum vitamin D3 level, duration of the disease and severity of both dermatologic and joint manifestations. Further studies exploring the complex role of vitamin D3 in psoriatic arthritis pathogenesis and severity are needed as well as appropriately designed clinical trials devoted to Vitamin D status correction and the disease manifestations. Disclosure statement. The authors report no conflicts of interest.

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