

**Background.** Multiple sclerosis (MS) is a chronic demyelinating disease of the central nervous system. Patients with MS rate their health related quality of life lower than general populations. Quality of life is a subjective and multidimensional concept. Quality of life of patients with MS is influenced by disability, depressive and anxiety symptoms, fatigue, comorbidity, sleep disorders, sexual dysfunction. Measurement of quality of life of patients with MS is of interest for their medical care, rehabilitation, and nursing. The impact of Cholecalciferol (Vitamin D3) supplementation on a patient's quality of life has not been completely clarified.

**Purpose.** The aim of this study was to assess the impact of oral Colecalciferol (Vitamin D3) – Aquadetrim® Vitaminum D3 on quality of life in patients with MS.

**Materials and methods.** Data were analyzed from 57 MS patients (20 men, 37 women). The mean age of all subjects was  $35.93 \pm 8.07$  years (21–55), with mean EDSS  $3.74 \pm 0.58$  (3.0–5.5) and disease duration of  $9.03 \pm 5.76$  years (1–27). Twenty-five patients were untreated (I group) and 32 were treated with Aquadetrim® Vitaminum D 34,000 IU/day in late fall and winter and 500-1500 IU/day in spring and summer (II group). At baseline and in 12 months after initiation of Vitamin D3 therapy MS patients were assessed using the Expanded Disability Status Scale (EDSS), Hamilton Rating Scale for Anxiety (HARS), Hamilton Rating Scale for Depression (HDRS), Modified Fatigue Impact Scale (MFIS), Mini Mental State Examination (MMSE). Venous blood sample was obtained from all participants and serum 25-hydroxy Vitamin D was measured by enzyme immunoassay (EIA) method. Quality of life, assessed by MOS 36-item Short Form Health Survey (SF-36), was related to Vitamin D3 supplementation and to clinical and demographic parameters at baseline and after one year. The data was analysed by the SPSS 20 (© SPSS Inc.) programme.

**Results.** At baseline MS groups did not differ in EDSS, HARS, HDRS, MFIS, MMSE, physical and mental quality of life scales. After one year of follow-up general health score ( $p = 0.002$ ), vitality score ( $p = 0.003$ ), role emotional score ( $p = 0.01$ ) and mental health score ( $p = 0.008$ ) significantly increased in Vitamin D3 supplementation group. Vitamin D3 has no influence on quality of life at inclusion time, but when quality of life was evaluated after one year, Vitamin D3 supplementation positively affected mental quality of life. Anxiety, depression and fatigue negatively influenced on mental quality of life at baseline ( $p < 0.01$ ). Mainly depression and fatigue negatively influenced on physical and mental quality of life after one year ( $p < 0.05$ ). EDSS correlated with a poor physical quality of life only at baseline ( $p < 0.01$ ).

**Conclusion.** Vitamin D3 supplementation had a positively impact on quality of life in MS patients, influencing mainly mental quality of life. The impairment of quality of life in

patients with MS was strongly associated with increasing depression, anxiety, fatigue, whereas clinical disability had a lower unfavourable role.