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Abstract

Assessment of Vitamin D Intake and Status in Slovenian Premenopausal and Postmenopausal Women †

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Abstract: Background and objective: The main source of Vitamin D is the synthesis of cholecalciferol (D3) from 7-dehydrocholesterol in the skin when exposed to ultraviolet radiation. A significant intake can be obtained from supplementation and fortified foods and to a lesser extent from fatty fish and eggs. The objective of our study was to assess vitamin D intake and status in Slovenian premenopausal and postmenopausal women. Methods: A cross-sectional study was conducted between March and May 2021, involving 319 women aged 44 to 65 years. After considering exclusion criteria and the completeness of data, 176 participants were included in the final analysis. Vitamin D status was determined by measuring the concentrations of total 25-hydroxyvitamin D (25(OH)D), vitamin D-binding protein (DBP), and albumin and by calculating bioavailable and free 25(OH)D. Vitamin D intake from fish (fatty and lean separately), eggs, and food supplements or drugs was assessed using a vitamin D-focused food frequency questionnaire (FFQ). In addition, sun exposure, menstrual status, socio-demographic characteristics, and health status were assessed. Results: Vitamin D insufficiency (total 25(OH)D < 75 nmol/L) was observed in 77% of premenopausal and 62% of postmenopausal women. Premenopausal women had 12% lower total 25(OH)D and 32% lower bioavailable 25(OH)D compared to postmenopausal women. The average milk and yoghurt consumption was 135 ± 161 mL/day; egg consumption was 3.2 ± 2.4 eggs/week. The mean vitamin D intakes from food and supplementation were 2.2 ± 1.3 µg/day and 21.7 ± 26.2 µg/day, respectively. In total, 61% of the participants supplemented with a mean dose of 35.4 ± 25.3 µg/day, with no statistically significant differences between premenopausal and postmenopausal women. The odds ratio (OR) for vitamin D insufficiency (25(OH)D < 75 nmol/L) among participants who did not supplement with vitamin D was 6.23; $p \leq 0.001$. Premenopausal women had a statistically non-significant lower supplementation rate. Discussion and conclusions: Vitamin D status among Slovenian postmenopausal women is significantly more favourable than among premenopausal women. Despite a high supplementation rate, vitamin D insufficiency is still present in the majority of the population. With limited milk consumption, milk fortification alone is not feasible. However, egg biofortification could offer a viable contribution to increasing vitamin D intake.

Keywords: vitamin D; 25(OH)D; postmenopausal; premenopausal; epidemiological study

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

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