

혈액투석환자에서 계절변이를 보이는 비타민 D 결핍과 식사 및 일광노출의 상관성

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The Relationship between Diet or Sun Exposure and Vitamin D Deficiency in End-stage Renal Disease Patients on Hemodialysis with Seasonal Variation

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Purpose: Vitamin D deficiency and seasonal variation in 25-hydroxyvitamin D [25(OH)D] is common in patients with end-stage renal disease (ESRD) on hemodialysis (HD). We aimed to investigate the seasonal prevalence of vitamin D deficiency and assess the relationship between diet or sun exposure and vitamin D in patients with ESRD

Methods: We prospectively evaluated 43 patients with end-stage renal disease at the end of autumn (October-November), winter (January-February), spring (April-May), and summer (July-September), respectively. From October 2012 until September 2013, 25(OH)D with other blood samples was collected at initiation of hemodialysis. The completed questionnaire data furnished information on dietary sources of vitamin D and sun exposure times. We defined vitamin D deficiency as 25(OH)D levels below 10 ng/mL, vitamin D insufficiency as levels between 10 and 30 ng/mL, and vitamin D sufficiency as levels between 31 and 100 ng/dL.

Results: Forty-two of 43 ESRD patients had 25(OH)D levels lower than 30 ng/mL at all seasons. The prevalence of vitamin D deficiency was 30.2% at the end of autumn, 39.2% at the end of winter, 51.2% at the end of spring, and 25.6% at the end of summer. 25(OH)D levels at the end of autumn and summer was significantly higher than at the end of winter and spring ($p < 0.01$). In each season, there was no difference of dietary vitamin D intake and sun exposure times between patients with vitamin D insufficiency and with vitamin D deficiency. Regression analysis showed that sun exposure time at the end of winter and spring was associated with 25(OH)D levels, while dietary vitamin D intake was not related to 25(OH)D level at all season.

Conclusion: Vitamin D deficiency was highly prevalent in Korean patients with ESRD who had seasonal variation in 25(OH)D. While sun exposure are relatively related to 25(OH)D level, current dietary vitamin D intake seem to be too insufficient to complement low 25(OH)D level in these patients.

Key Words: 비타민 D 결핍, 계절변이, 말기신부전

vitamin D deficiency, Seasonal variation, End-stage renal disease