Compensation by Solar Irradiation of Depletion of 25(OH)D in CAPD Patients

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Dear Sir,

Low levels of 25(OH)D in serum have been described in patients on continuous ambulatory peritoneal dialysis (CAPD) [1, 2], attributed to a peritoneal loss of this metabolite and its transport protein [3, 4]. There are also studies which show a progressive decrease in the values through the time that the patient is on CAPD [2]. In previous studies we have been able to show that, in our geographic area, the levels of 25(OH)D are lower in the patients on CAPD than in normal controls [5], after the period of lowest solar radiation (March-April), but there is no progressive decrease in their levels through the time on dialysis. Since in our geographic area there are important variations in the levels of 25(OH)D throughout the year in normal controls which are dependent on the season, we have quantified the levels of this metabolite in patients on CAPD, to find out whether solar radiation might compensate for the peritoneal loss. We have studied 51 patients on CAPD through 2 years with a total of 167 determinations. They were not restricted in their protein intake nor did they receive treatment with either vitamin D or 25(OH)D. The control group consisted of 73 normal subjects with a total of 80 determinations through 2 years. Both groups were of similar age and were resident in the Madrid area of Spain within a radius of 50 km. The levels of 25(OH)D were quantified by protein binding by a commercial method (Bühlman), after purification by HPLC [6].

In the patients on CAPD we found, as in the normal controls, significant variations in the levels of 25(OH)D throughout the year (fig. 1). In any season of the year the levels were always lower in patients on CAPD than in the normal controls, but the percentage of patients with lev-

19.3 ± 6.7 9.6 ± 5.5* 21 ± 7 14 ± 6.5* 32 ± 14 18 ± 7.2* 22.6 ± 7 13 ± 7

Fig. 1. Levels of 25(OH)D in normal controls (NC) and in patients on CAPD in the four seasons of the year: Winter (I), spring (II), summer (III) and autumn (IV). Dotted line = lowest normal range; n = number of determinations; % = proportion of determinations below normal level; values (mean ± SD) marked with an asterisk = significant difference as compared with NC.

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els below the lower limit of the normal range varied greatly from season to season. We found no relationship between the time on dialysis and the levels of 25(OH)D.

We conclude that the levels of 25(OH)D are lower in the patient on CAPD than in normal controls, but if we quantified their values in the seasons of highest solar irradiation, it would be possible to misinterpret the results since they are within the normal range. However, during the other seasons of the year the levels are below the normal range.

In our geographic area the levels of 25(OH)D in the patients on CAPD seem to be influenced more by the seasons than by the time on dialysis because the solar irradiation compensates for the peritoneal loss.

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