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EFFECTS OF CHOLICALCIFEROL ON PATIENTS UNDERGOING HEMODIALYSIS

Sevjidmaa Gankhuyag , Naran-Amgalan Bold, Oyun Nyamdorj, Byambasuren Odontsogt, Sattigul Sherekbai
Department of Internal Medicine-Nephrology, Shinonmed hospital, Mongolia

Objectives : To study the effect of cholecalciferol on patients undergoing hemodialysis treatment
Methods : A prospective study was conducted with a total of 46 patients aged 19-75 who voluntarily participated in the hemodialysis treatment at Shinonmed Hospital. In the study, serum vitamin D levels were measured before hemodialysis treatment, the therapeutic dose was calculated, and high-dose cholecalciferol (25[OH]D) was administered. Serum cholecalciferol levels were then re-measured one month later. The effectiveness of cholecalciferol treatment was assessed by considering hemoglobin, PTH, and certain biochemical parameters. SPSS 30 software was used for statistical analysis.
Results : The study included 46 hemodialysis patients aged 19–75 at Shinonmed Hospital. The average age of participants was 49.65 (SD=12.4), with 67.4% (n=31) being male and 32.6% (n=15) female. The average duration of hemodialysis treatment is 37.21±3.4 months. After high-dose cholecalciferol (25[OH]D) treatment, serum vitamin D3 levels increased, and PTH levels decreased, showing statistically significant results ($p < 0.01$). No statistically significant differences were observed in serum calcium, phosphorus, total protein, or albumin levels before and after treatment (>0.05). The percentage of individuals with serum vitamin D levels above 30 ng/ml increased to 22.0% after treatment.
Conclusions : No overdose was observed when high-dose cholecalciferol (25[OH]D) was administered to the patients with vitamin D deficiency for 1 month. When the level of vitamin D reach the normal level after administering high dose of cholecalciferol (25[OH]D), there is no significant positive (>0.05) correlation between the level of d vit and calcium, phosphorus, total protein, and albumin levels, however some patients showed had increased albumin and decreased phosphorus. Further studies need to be conducted to see long term effect of high-dose cholecalciferol (25[OH]D in patients with hemodialysis. Based on the preliminary result of this study, constant use of high-dose cholecalciferol (25[OH]D could be preferred to the patients with hemodialysis to decrease PTH level.

table 1.png

Table 1 Changes in serum vitamin D3

Parameter	Before treatment (M±SD)	After treatment (M±SD)	P-value
PTH	1194.1 ± 902.8	1110.7 ± 872.8	<0.01
Cholecalciferol (25[OH]D)	16.6 ± 7.2	22.1 ± 8.8	

After high-dose cholecalciferol (25[OH]D) treatment, serum vitamin D3 levels increased, and PTH levels decreased, showing statistically significant results ($p < 0.01$).

table 1.png

Table 2. Effect of High-Dose 25(OH)D

Cholecalciferol (25[OH]D)	Before treatment (%)	After treatment (%)
< 20 ng/mL	78.0%	41.5%
20–30 ng/mL	17.1%	36.6%
> 30 ng/mL	4.9%	22.0%

As shown in Table 2, the percentage of individuals with serum vitamin D levels above 30 ng/ml increased to 22.0% after treatment.