

Relationship of calcium intake with serum calcium level.
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We conducted the following prospective observational study on 42 (25 male, 17 female) stable, non-diabetic maintenance hemodialysis patients (pts) to quantify the relationship of oral calcium intake with serum calcium levels. Subjects kept a detailed food diary for 1 week followed by a detailed interview with an experienced renal dietician. Nutrient intake was calculated using WISP v2.0 (Tinuviel Software) Albumin adjusted serum calcium levels were measured pre dialysis on days 1 and 7.

Mean (sd) serum albumin, day 7 uncorrected serum calcium (S. Ca), and day 7 albumin corrected serum calcium (S.Ca_{ALB COR}) were: 35.7 g/dl (2.9), 2.37 mmol/l (0.21) and 2.46 mmol/L (0.2). The day 1 and day 7 serum calcium levels were very similar (mean difference 0.004 mmol/l). S.Ca_{ALB COR} was low (<2.1 mmol/l) in 2 pts, normal (2.1-2.37) in 9 pts, high normal (2.37-2.54) in 18 pts and high (>2.54) in 13 pts. Mean (sd) total (diet plus binder) oral calcium intake (mg/d) was 1996 mg/d (1020); 16 pts (38%) had an excessive oral total calcium intake (>2000 mg/d). Calcium intake and serum calcium were poorly correlated (spearman rank method) $r=0.14$, $p=0.4$ Median calcium intakes were similar in those with normal (1990 mg/d), high normal (1926 mg/d) and high calcium groups (1713 mg/d), $p=0.73$ (Kruskal-Wallis), $p=0.29$ (linear test for trend). The n (%) of subjects with an excessive oral calcium intake by S.Ca_{ALB COR} were: 2.1–2.37mmol/l: 4 pts (36%); 2.37-2.54 mmol/l: 7 pts (39%) and >2.54 mmol/l: 5 pts (39%). Similar results to the above were found using unadjusted serum calcium levels.

Though limited by its modest sample size and inability to assess the extent of calcium absorption from the GI tract, our results suggest that serum calcium is not a useful surrogate measure of total oral calcium intake and may not accurately reflect the degree of calcium loading.