

# HIGH SERUM MAGNESIUM LEVELS AND CINACALCET USE ARE ASSOCIATED WITH LOWER ABDOMINAL AORTIC CALCIFICATION SCORES IN PERITONEAL DIALYSIS PATIENTS

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## INTRODUCTION AND AIM

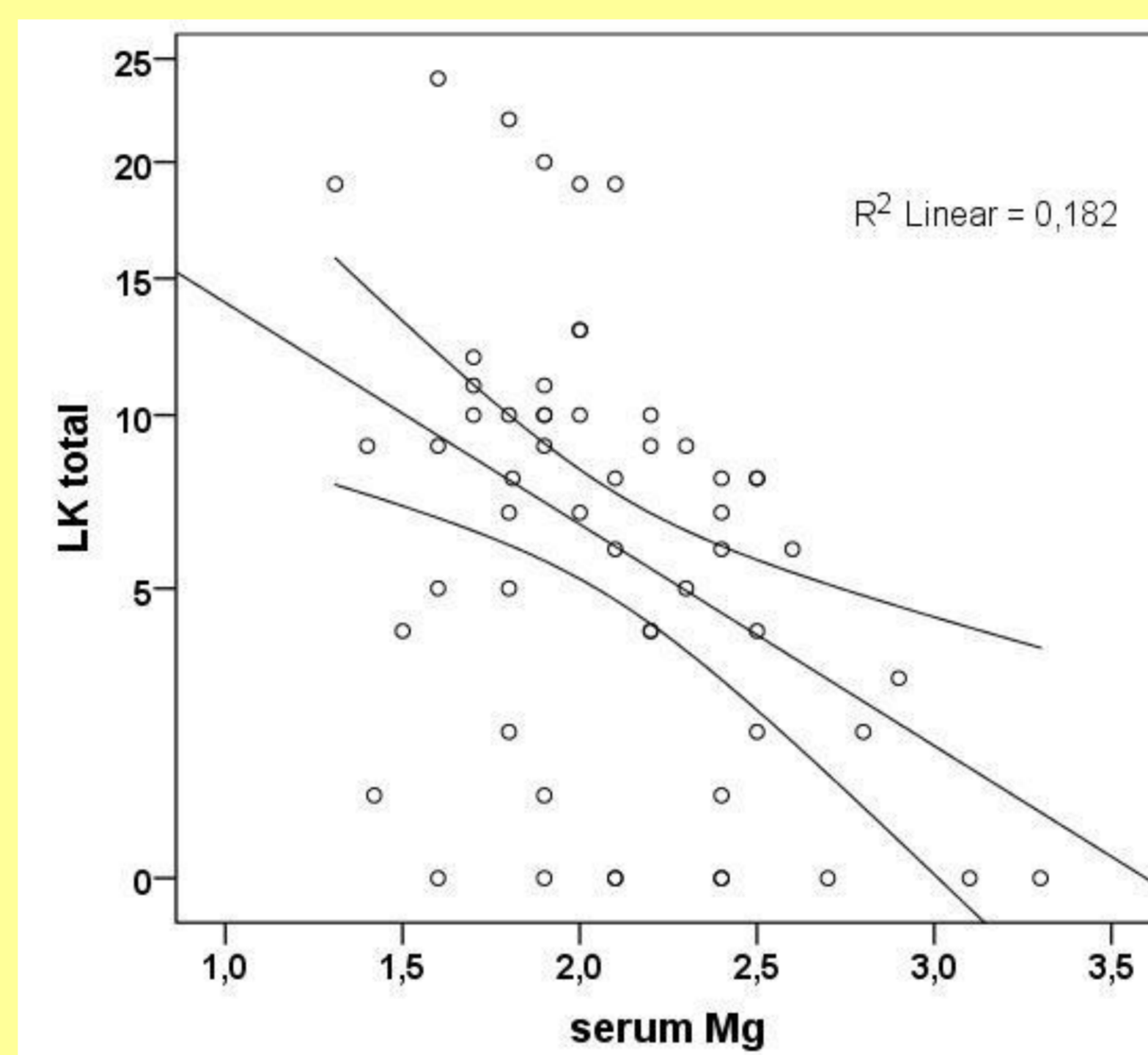
Vascular calcification is an important cardiovascular risk factor in chronic kidney disease patients. Recent studies have shown that the extent of abdominal aortic calcification (AAC), estimated by plain lateral lumbar x-rays, was highly predictive of cardiovascular events and mortality in both the general and CKD population. The aim of this study was to assess risk factors for AAC in Peritoneal Dialysis (PD) patients (pts) and identify potentially modifiable factors that could protect against progression of AAC, a surrogate of Cardiovascular Disease.

## METHODS

We studied 56 stable PD patients, 30 Men and 26 Women, with a mean age of 62.5 years  $\pm$  11 years. The most important risk factors for AAC that were evaluated are shown in Table (values mean  $\pm$  standard deviation). 17 (30%) pts had Diabetes Mellitus and 43 pts (77%) had Arterial Hypertension. The degree of AAC was evaluated with Leena Kauppila (LK) score (range 0-24) on plain lateral abdominal radiographs. Given that a LK score of 0-4 was associated with the best event free survival of pts in the CORD study (CJASN 2011), patients were divided according to the degree of calcification in Group 1(LK score 0-4) and Group 2 (LK score 5-24), each comprising 20 (36%) and 36 (64%) pts, respectively. Univariate and multivariate regression analysis were used for analysis.

## RESULTS

Table			
	Group1	Group2	p
Calcification score	<b>0-4</b>	<b>5-22</b>	
Patient Number	20 (36%)	36 (64%)	
<b>Age (years)</b>	<b>54.6 <math>\pm</math> 8.8</b>	<b>66.8 <math>\pm</math> 10.1</b>	<b>&lt;0.001</b>
Dialysis Vintage (months)	76.8 $\pm$ 104	51.4 $\pm$ 47	0.2
Serum Calcium (mg/dl)	9.0 $\pm$ 1	9.2 $\pm$ 0.7	0.3
Serum Phosphate (mg/dl)	5.3 $\pm$ 1.1	4.7 $\pm$ 1	0.1
Serum Ca*P (mg <sup>2</sup> /dl <sup>2</sup> )	47.4 $\pm$ 9.5	44.1 $\pm$ 9.8	0.2
Serum PTH(pg/ml)	269 $\pm$ 168	298 $\pm$ 151	0.5
<b>Serum Magnesium (mg/dl)</b>	<b>2.28<math>\pm</math>0.5</b>	<b>2<math>\pm</math>0.3</b>	<b>0.016</b>
<b>Cinacalcet use (Yes%)</b>	<b>40%</b>	<b>13.9%</b>	<b>0.027</b>
Smoking (Yes%)	5%	22%	0.09



Mean LK score was 7.32 $\pm$  6. Traditional risk factors for vascular calcification as dialysis vintage, diabetes, hypertension, smoking, calcium, phosphate and their product, Parathormone, cholesterol, use of calcium phosphate binders or vitamin D analogs were not associated with LK score. The only significant independent predictors of AAC identified by multiple regression analysis were Age (B=0.26 p<0.001), serum Mg (sMg) (B=-0.6 p=0.02) (shown in figure) and cinacalcet use (B=-3.5 p=0.033). Specifically, patients with LK score (0-4) were younger in age (54.6  $\pm$  8.8 vs.66.8  $\pm$ 10.1 years; p<0.001), had higher sMg (2.28  $\pm$  0.50 vs 2.0  $\pm$  0.3 mg/dl; p=0.016) and higher use of cinacalcet (40% vs.13.9; p<0.05). 82% of the PD pts had sMg levels <2.5 mg/dl. sMg also significantly correlated with Mg concentration (0.75/0.50/0.25 mmol/L) in the dialysate (r=0.5 p<0.001).

## CONCLUSIONS

Our data indicate that sustaining higher sMg levels, by using for example higher Mg dialysate concentration and administering cinacalcet for the treatment of secondary hyperparathyroidism may potentially lower the AAC burden and, thus, improve cardiovascular risk in PD patients.

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