SERUM PHOSPHATE MODIFICATIONS ARE ASSOCIATED WITH CHANGES IN SERUM FGF23 AND C-REACTIVE PROTEIN.

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Introduction

High serum levels of both FGF23 and phosphate (P) are associated with increased mortality in dialysis (HD) patients; thus, control of these parameters should benefit the patient. Phosphate stimulates FGF23 production; in chronic kidney disease (CKD) patients, reductions in serum P concentration produce decreases in serum concentration of FGF23. However, this effect remains to be demonstrated in HD patients.

Objective

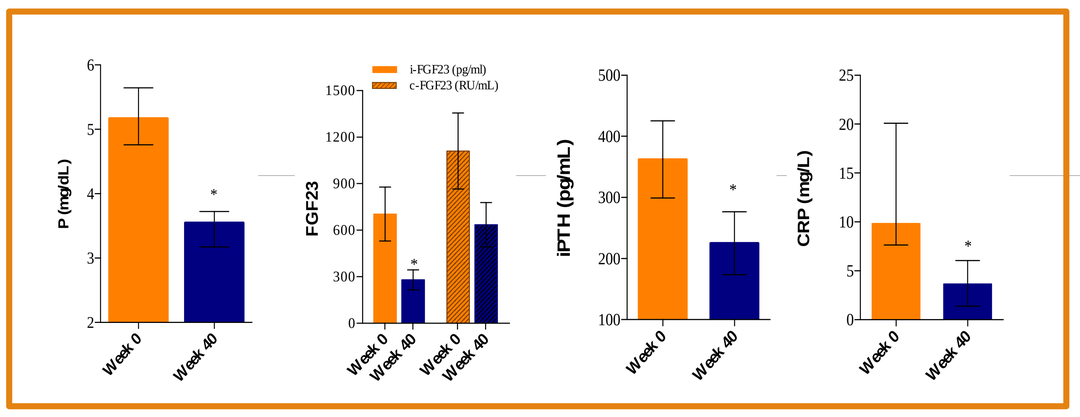
The aim of the present study was to evaluate in HD patients whether a sustained reduction or elevation in serum P concentration is associated with changes in FGF23.

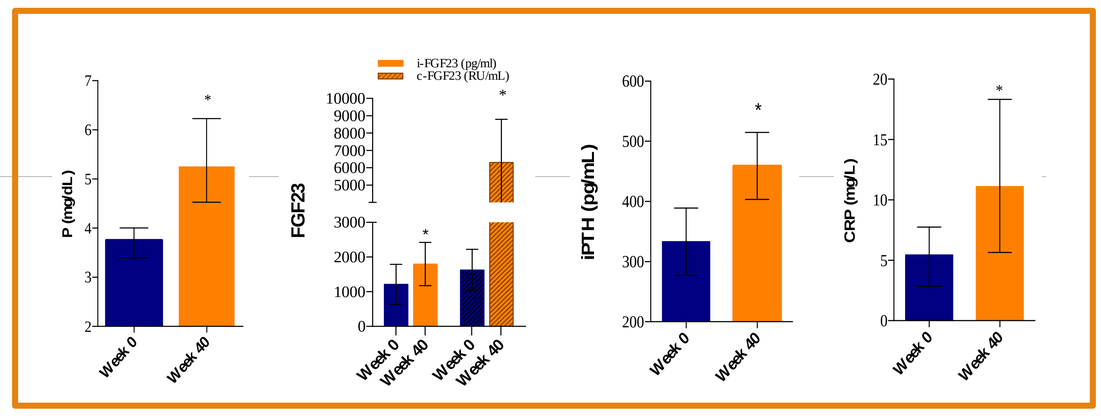
Methods

Longitudinal study in 20 stable HD patients. Ten patients had a prolonged elevation in serum P due to poor compliance and 10 additional patients were on strict sustained control of serum P level. Patients were evaluated at baseline and after forty weeks. The blood biochemistry measurements included both FGF23 molecules, intact (i-FGF23) and c-terminal (c-FGF23), intact parathyroid hormone (i-PTH), ionized serum calcium (iCa), serum P and high-sensitive C-reactive Protein (CRP). All patients were on high-flux HD. To be included dialysis technique and dialysis duration should not have been modified. Age and Dialysis vintage must be comparable. Finally, patients did not receive neither Vitamin D analogs nor cinacalcet throughout the follow-up.

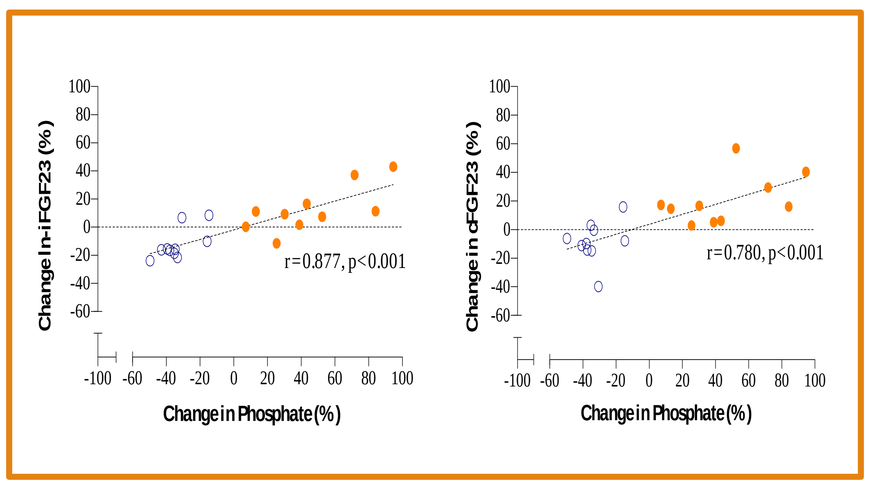
RESULTS

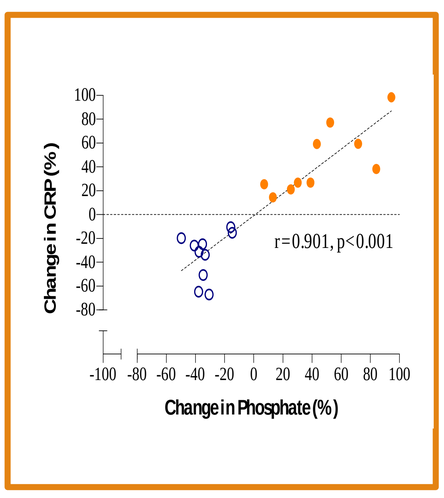
	Decreased P			Increased P		
Variable	**Week 0**	**Week 40**	**p**	**Week 0**	**Week 40**	**p**
Age (Years)	68.0 (59.5—76.2)	-----	-----	72.5 (64.5—81.0)	-----	-----
Dialysis Vintage (Months)	57.1 (23.3—87.3)	-----	-----	58.5 (20.2—120.0)	-----	-----
iCa (mEq/L)	2.27 (2.16—2.32)	2.20 (2.08—2.30)	0.13	2.22 (2.14—2.24)	2.24 (2.20—2.26)	0.31
25 (OH) D (ng/ml)	8.6 (6.3—12.4)	8.1-6.5—10.5)	0.87	9.5 (9.2—17.9)	12.8 (10.0—17.3)	0.13
1,25 $(OH)_2$ D (pg/ml)	8.2 (7.1—14.6)	13.1 (5.3—15.2)	0.57	9.2 (8.4—9.4)	7.8 (7.1—8.6)	0.06

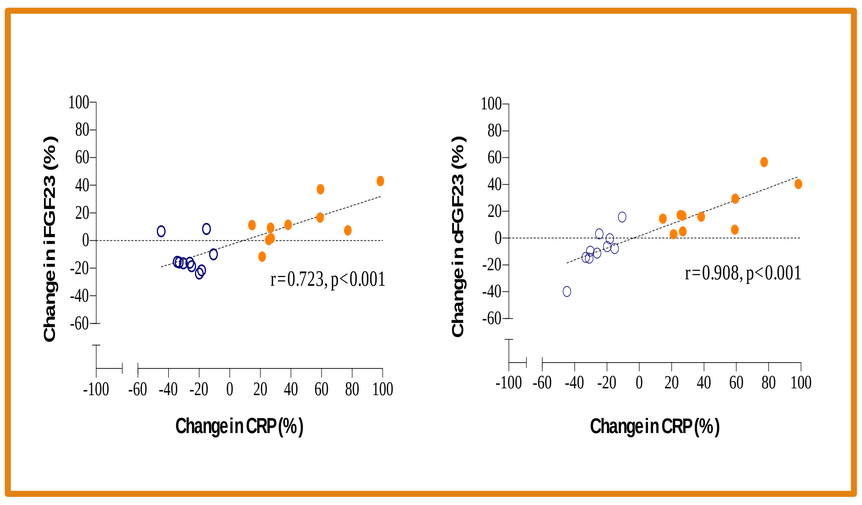




Correlations







Conclusions

Modifications in serum P are associated with changes in serum levels of CRP and i-FGF23. In turn changes in CRP and i-FGF23 are closely interrelated. Control of serum P reduces P, FGF23 and inflammation, all of them independently associated with mortality.

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