



FGF-23 AND KLOTHO LEVELS IN RENAL TRANSPLANT PATIENTS AND COMPARISON WITH HEMODIALYSIS PATIENTS

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INTRODUCTION

FGF-23(Fibroblast growth factor-23) is a key peptide hormone for serum phosphorus regulation (1). Klotho, produced in osteocysts, is an essential cofactor for FGF-23 receptor activation (2). Renal transplantation(RTx) is a gold standard treatment modality for end stage renal disease patients. The aim of this study was to measure FGF-23, klotho, calcium, phosphorus, parathormon and 25-OH vitamin D levels in RTx patients, and to compare with hemodialysis patients and healthy controls.

METHOD

The study group composed of 40 RTx patients who had transplantation at least 6 months before. Control groups were 25 hemodialysis patients and 20 healthy subjects. Sociodemografic data of the participants were recorded. Calcium, phosphorus, parathormon, 25-OH vitamin D, FGF-23, klotho, creatinine, uric acid and CRP levels and hemogram were measured. FGF-23 and klotho was studied using Elisa method.

RESULTS

Creatinine ($p<0001$), uric acid($p=003$), phosphorus ($p<0001$), parathormon ($p<0001$), FGF-23 ($p<0001$) and klotho ($p<0001$) levels were significantly different between groups (Table). FGF-23 ($p=0,52$) was not different between RTx group and HD group. However klotho ($p=001$) was significantly lower in RTx group. When we compare RTx and healthy controls FGF-23 ($p<0,0001$) was significantly higher and klotho ($p=0,022$) was lower in RTx group. When we compared HD and healthy controls FGF-23 ($p<0001$) was higher, klotho($p<0001$) was lower in HD group. Correlation analysis revealed that FGF-23 was correlated with klotho ($r:0,31 p=0,04$), creatinine($r:0,44 p<0,0001$), uric acid ($r:0,38 p<0,0001$) and CRP ($r:0,26 p=0,014$) levels and klotho was correlated with FGF-23($r:0,31 p=0,04$), creatinine ($r:0,38 p<0,0001$) and phosphorus ($r:0,35 p=0,001$) levels.

Table: Laboratory Parameters of Patient Groups

	RTx (n=40) (Mean±SD)	HD (n=25) (Mean±SD)	Control (n=20) (Mean±SD)	P value
FGF-23 (pg/mL)	47,4±61	62,6±76,9	1,6±1,3	<0,0001
Klotho (ng/mL)	153±170	289,6±396,2	641±1797	<0,0001
PTH (pg/mL)	102,5±73	390,8±298,3		<0,0001
25-OH Vit D(ng/mL)	17,1±11	46±23,6	15,9±7,1	<0,0001
Calcium (mg/dL)	9,5±0,7	9,2±0,8	9,2±0,3	0,36
Phosphorus (mg/dL)	3,2±0,6	5,6±1	3,3±0,4	<0,0001
Creatinine (mg/dL)	0,98±0,2	9,3±3,5	0,76±0,1	<0,0001
Uric acid (mg/dL)	6,6±1,7	6,1±1,2	5,1±1	0,003
CRP (mg/L)	4,8±6,2	19,6±55	2,1±2,3	0,009

CONCLUSION

When we compared with HD patients FGF-23 levels were low but not significantly in RTx patients, however this decline was not in the range of healthy controls. Klotho levels were not high as healthy controls. These results suggest that metabolic abnormalities in HD patients were not normalized in RTx patients.

REFERENCES

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