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Elevated level of FGF23 associated with the post renal transplantation hypophosphatemia

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Objectives: The aim of this study was to determine the predictors of post renal transplant hypophosphatemia in living donor transplantation

Methods: Intact PTH(iPTH), biointact FGF23, albumin corrected calcium, and inorganic phosphorus (iP) were analyzed in 63 ESRD (Male 58, mean age 35.65±11.79 years) patients who underwent living donor renal transplantation (Tx) before and at month 1(M1) after transplantation. The native kidney diseases of these patients were chronic glomerulonephritis (n=36), interstitial nephropathy (n=20), diabetic nephropathy (n=6) and polycystic kidney disease (n=1). The upper normal cutoff value of iPTH was considered as >65 pg/ml, and iFGF23 >50 pg/mL, hypo and hyperphosphatemia was defined with iP<2.5 and >5.5mg/dl respectively, hypo and hypercalcemia with corrected for serum albumin <8.5 and >10.8 mg/dL, respectively

Results: The mean iP level was decreased by 54.51% at M1 from pre Tx values; however; hypophosphatemia was observed only in 17(27%) patients at M1. Mean FGF23 level was decline by 93.81% at M1 and 23(36.5%) recipients had their FGF23 value above the normal range. Mean iPTH levels was also decreaesd by 67.9% and hyperparathyroidism was observed in 40(63.5%) patients at M1. Hypophosphatemic patients had higher FGF23 ($p<0.001$) and iPTH ($p=0.272$) compared to normophosphatemic. At onset of hypophophatemia after Tx; on univarriate linear regression serum iP was significantly correlated with FGF23; uric acid and eGFR; however on multivarriate linear regression using a backward stepwise model; serum iP was significantly associated only with FGF23 levels ($p<0.001$); but not with iPTH and other factors regulating phosphate metabolism at M1

Conclusions: This study indicate that FGF23 is strongly associated with hypophosphatemia; independently of iPTH early after Tx