



Validation of FGF-23 as a Biomarker for Phosphorus Homeostasis in Hemodialysis Patients

A Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

«وَقُلْ اَعْمَلُوا فَسَيَرَى اللَّهُ عَمَلَكُمْ
وَرَسُولُهُ وَالْمُؤْمِنُونَ»

صدق الله العظيم

سورة التوبة آية (105)

DECLARATION

I declare that this thesis has been composed by me and the work and the data that has been record in this thesis was done by me. This thesis has not been submitted for a degree in this or any other university.

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Dina Hilal Ibrahim Hilal

Dedicated to.....

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My beloved husband,

My Angel kids,

My wonderful Father,

My Great Mother,

My Dear Brothers.

Dedicated to my Parents and my Brothers

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List of Abbreviations

ACR	Albumin-to-creatinine ratio
AKI	Acute kidney injury
ALP	Alkaline phosphatase
Apo-C	Apolipoprotein C
ARF	Acute renal failure
Ca	Calcium
CKD	Chronic kidney disease
Ca X Pi	Calcium-phosphorous product
CHD	Coronary heart disease
CRF	Chronic renal failure
CRP	C-reactive protein
CVC	Central venous catheters
CVD	Cardiovascular disease
ESRD	End stage renal disease
FGF-23	Fibroblast growth factor-23
GFR	Glomerular filtration rate
GIT	Gastrointestinal tract
H ⁺	Hydrogen ion
HCT	Hematocrit
HD	Hemodialysis patients
HDL-C	High density lipoprotein
Hs-CRP	Highly sensitive C-reactive protein
IL-6	Interleukin-6
K ⁺	Potassium
kDa	Kilo Dalton
KDIGO	Kidney Disease Improving Global Outcomes
KDOQI	Kidney Disease Outcomes Quality Initiative
LDL	Low density lipoprotein
MRFIT	The Multiple Risk Factor Intervention Study
Na	Sodium
NFP	Net filtration pressure
NH ₄ ⁺	Ammonium ion
NKF	National Kidney Foundation
1,25(OH) ₂ D	Active form of vitamin D
P, Pi, PO ₄	Phosphorous

PTH	Parathyroid hormone
PTG	Parathyroid gland
RBCs	Red blood corpuscles
SD	Standard deviation
sHPT	Secondary hyperparathyroidism
TIBC	Total Iron Binding Capacity
TG	Triglyceride
T Sat	Transferrin Saturation
VLDL	Very Low density lipoprotein