Summary

Chronic kidney disease (CKD) with dialysis is a progressive condition characterized by structural and functional changes to the kidney. It is typically defined as a reduction in kidney function, estimated glomerular filtration rate [eGFR] <60 ml/min/1.73m2, or markers of kidney damage, such as albuminuria, hematuria or abnormalities detected on imaging, present for at least 3 months. In the terminal phase of CKD, dialysis is the most widely used renal replacement therapy throughout the world, contributing to increased patient survival.

The present study was designed to active the following aims: Investigate the diagnostic and prognostic role of ghrelin and leptin hormones relevant to CKD, investigation the role of pro nitric oxide in causation of CKD, evaluation of serum Lipids profile status during dialysis, investigation the genetic effect of ghrelin and leptin in the causation of CKD, the present study was started with (180) cases (patients and healthy): Controls group: Includes (90) subject in healthy male and female , ages (18-70) years, Patients group: Includes (90) subject with CKD with dialysis male and female , ages (18-70) years.

Biochemical parameters, including nitric oxide, ghrelin, leptin, and lipid profile, were measured for females and males at ages ranging from (18-70) years, and the relationship of these parameters to hypertension, diabetes, smoking, and dialysis durationThe results obtained in this study showed a significant decrease in the concentration of both ghrelin and nitric oxide and a significant increase in the concentration of leptin, and there was no noticeable significant change or a slight decrease in the lipid profile in the group of dialysis patients compared to the control group ($P<0.05$). The concentration of ghrelin and nitric oxide showed a significant decrease, and a significant increase in the concentration of leptin, and there was no noticeable significant change or a slight decrease in the lipid profile in the female and male groups, dialysis duration , old age , diabetes, hypertension and smokers, compared to the control groups ($P <0.05$). It is results also showed that there was a significant decrease in the concentration of both ghrelin and nitric oxide and a significant increase in the concentration of leptin, and there was no noticeable significant change or a slight decrease in the lipid profile in dialysis patients female compared to males, and in dialysis patients with diabetes and hypertention, smokers, and those with a duration of dialysis > 1 year compared with dialysis patients without diabetes, hypertension, non-smokers, and those with a duration of dialysis < 1 year ($P<0.05$), respectively. The results of GHRL 370.A>C Gene show genotypes AA(O.R. = 1.00 , C.I. 95% = Non-C.I), AC (O.R. = 0.72 , C.I. 95% = 0.72-1.91), CC (O.R. = 1.09 , C.I. 95% = 0.31-3.89) and allele C (O.R. =

0.99 , C.I. 95% = 0.51-1.93). The results shows the frequency of the genotypes AA, AC & CC for the GHRL gene for the group of patients and healthy controls and the frequency of the A & C alleles. The present study recorded the AA and CC genotypes increased non-significantly in control group, while the AC genotype increased non-significantly in dialysis patients than control group. The frequency of A and C alleles increased non-significantly in dialysis patients than control group, also recorded by odds. ratio a non-significant between patients and control at ($p < 0.05$).The genotype sequences of the GHRL gene were registered in the NCBI International GenBank. The results of Leptin 173.T>C Gene show genotypes TT(O.R. = 1.67 , C.I. 95% = 0.64-4.36), TC/CC (O.R. = 2.25 , C.I. 95% = 0.50-10.05) and allele C (O.R. = 1.23 , C.I. 95% = 0.64-2.36). We note from the result of the alignment between the amino acids resulting from the translation of the codes for the studied leptin gene sequence that the type of mutation occurring is due to changing the base T to C at the lep site. T173C is a missense mutation, The result of Leptin 173.T>C Gene showed that one SNP site was obtained at the lep site T>C.173. This mutation resulted in three genotypes: TT, TC & CC. The results of the translation of the studied region of the lep gene sequence confirmed that the mutation is of the missense mutation type ,

From the results of the current study, the following elements can be concluded: Diabetes or insulin resistance is a major feature of chronic kidney disease. Nitric oxide can be considered a biomarker for early prediction of chronic kidney disease and access to dialysis. Leptin and ghrelin levels are associated with dialysis because they are clearly associated with an increased risk of developing chronic kidney disease. Oxidative stress is an important feature of the hemodialysis phase. Leptin levels are positively associated with dialysis while ghrelin, nitric oxide, and lipid profile levels are negatively associated with dialysis. The AA, AC and CC Genotypes and C allele of GHRL gene , also The TT, TC and CC Genotypes and C allele of Leptin gene more common in the CKD with dialysis compared to the control group.