SUMARRY&CONCLUSION

Chronic kidney disease (CKD) is a progressive and irreversible condition, defined in the National Kidney Foundation Kidney Disease Outcomes Quality Initiative (K/DOQI) guidelines as either sustained kidney damage or decreased kidney function for three or more months **(Kalantar-Zadeh et al., 2007**) .

Patients with CKD are at high risk for cardiovascular disease (CVD), and an increased prevalence of both CVD morbidity and mortality is evident at all ages among patients with CKD. Both traditional risk factors, including diabetes, dyslipidemia, and hypertension, and nontraditional risk factors associated with CKD, including inflammation, oxidant stress, malnutrition, and proteinuria, may further increase CVD risk (**Weiner and Sarnak., 2004).**

Although some patients with CKD will ultimately develop renal failure, most patients with CKD will die of cardiovascular disease before dialysis becomes necessary. Although many factors other than lipids may contribute to the high cardiovascular event rates observed in patients with CKD, it is likely that dyslipidemia plays a major role (**Harper and Jacobson .,2008).**

Patients with CKD have major proatherogenic lipid abnormalities that are treatable with readily available therapies, yet many clinicians are reluctant to treat these patients aggressively, citing concerns about safety or lack of evidence suggesting clinical benefit when using drugs in this population **(Vaziri., 2006).**

The spectrum of dyslipidemia in patients with CKD and dialysis patients is distinct from that of the general population. It involves all

lipoprotein classes and shows considerable variations depending on the stage of CKD. Apart from quantitative differences, major qualitative changes in lipoproteins can be observed, such as oxidization and modification to sdLDL, which render the particles more atherogenic **(Kwan et al.,2007).**

Because of the increased risk of CVD and the high prevalence of dyslipidemia in patients with CKD, the NKF recently released guidelines for the treatment of dyslipidemia in these patients. The work group concluded that much of the National Cholesterol Education Program Adult Treatment Panel III (NCEP ATP III) guidelines were applicable to patients with Stages 1–5 CKD, including kidney transplant patients, with several important exceptions. Most notable among K/DOQI recommendations is that all stages of CKD are considered a CHD risk equivalent (similar to diabetes mellitus); therefore, all patients with CKD should be considered as belonging to the highest risk group for CHD and target LDL-C should be less than 100 mg/dl (2.6 mmol/L). The guidelines recognize that some CKD patients with dyslipidemia may be able to achieve their cholesterol goals through lifestyle changes alone. However, because of the complex dietary requirements of these patients, particulary those with stage 5 CKD, consultation with a specialist dietician is important. Realistically, most CKD patients with dyslipidemia eventually will require pharmacologic treatment (**Weiner and Sarnak., 2004).**

Statins are the cornerstone of therapy for most patients with CKD, except those with triglycerides >500 mg/dl, in which case gemfibrozil or an omega-3 fatty acid supplement from fish oil could be considered. Because of the high prevalence of triglyceride disorders in patients with CKD, non-HDL should be calculated for patients with CKD and used as

the secondary goal of treatment. Evidence from subgroup analysis of several landmark lipid trials supports treating dyslipidemia in mild to moderate patients with CKD, and this group represents the majority of patients with CKD. Currently there is no evidence to support treating dialysis patients; however, a large trial using statins with dialysis patients are underway. Because statins are relatively safe and the evidence for lowering cholesterol to reduce CVD is so overwhelmingly positive in non dialysis patients, it is reasonable to continue treating these patients until future trials are completed (**Harper and Jacobson ., 2008).**

In the meanwhile, treatment of patients with ESRD should be multitargeted. Also in this population cholesterol should not be an overlooked target Treatment in patients with ESRD should be directed at optimising all other risk factors such as hypertension, calcium-phosphate balance, vitamin D and hyperparathyroidism **(Diepeveen, et al., 2008).**

In patients with ESRD undergoing maintenance HD, the initiation of treatment with rosuvastatin (10 mg daily) lowered the LDL cholesterol level but does not reduce adverse CV events; therefore, the benefits of LDL-C lowering are not directly transferable from the traditional high-risk patients to patients with ESRD undergoing HD. On the other hand, these observations should not change the practice of physicians in prescribing statins to patients who are deemed high risk for CV events (**Fellström et al., 2009)**.

The prevalence and ability to modify dyslipidemias render lipid modification a potentially important intervention for improving outcomes after kidney transplantation **(Larosa and vuputuri.,1999).**

The existing data support the conclusion that statins can be safely used in combination with CNI (cyclosporine and tacrolimus) in kidney transplant patients, if the dosage is reduced and other agents that are metabolized by the CYP system are avoided **(Nogueira and Weir., 2007).**