SUMMARY AND CONCLUSIONS

In the present study with the aim of studying the biochemical and molecular markers in patients with T2DM with and without nephropathy, an observational case control study was planned. By the use of polymerase chain reaction the I/D polymorphism of ACE was detected in T2DM patients with & without nephropathy and healthy controls, along with the biochemical parameters viz. lipids, lipoproteins, fasting blood glucose, blood urea, serum creatinine, urine microalbumin, urine creatinine and glycated hemoglobin levels. The statistical analysis was done to test the proposed hypotheses by using corresponding statistical tests. From the data we observed and from the statistical analysis, the following conclusions were drawn,

1. We could find altered levels of biochemical as well as lipid markers in T2DM patients with and without nephropathy than controls. This indicates the increased CVD risk in these patients.

2. We tried to find out the cut off values of lipid profile markers. The normal values of lipid profile of general population cannot be applicable to the T2DM patients with nephropathy The cut off values >24.3, >187.2, >143.1, ≤42.7, >119.9 and >37.2 of BMI, total cholesterol, triglycerides, HDL-C, LDL-C and VLDL-C respectively. So these values can define the increased risk of CVDs in diabetic nephropathy patients when the values of these parameters falls above or below for HDL-C these values.

3. The ACE I/D polymorphism genotypes were not differed among T2DM patients with and without nephropathy and healthy controls. But the ‘D’ allele frequency was increased in T2DM patients with as well as without nephropathy than healthy controls. Also this polymorphism was found to be associated with total cholesterol, triglycerides, HDL-C, LDL-C and VLDL-C in both T2DM patients with and without nephropathy, and BMI was associated only in T2DM patients with nephropathy. Also the levels of these lipid parameters were differed significantly between the patients homozygous for ‘I’ allele and carriers of ‘D’ (ID+DD) allele. As increased
levels of TG, LDL-C and decreased level of HDL-C are independent risk factors for CVD, therefore the presence of ‘D’ allele along with 1.84 & 2.41 times increased risk of development of T2DM and DN respectively, along with atherogenic effect of this polymorphism in T2DM patients with as well as without nephropathy.

4. This is the first study from India to note the gene expression of podocyte related proteins in patients of T2DM with and without nephropathy. The altered gene expression of podocalyxin, podocin and synaptopodin was observed in the present study in healthy controls, T2DM, microalbuminuric and overt nephropathy patients. The use of the altered gene expression of these proteins can be used as an early marker for the detection of development of nephropathy in T2DM patients as well as healthy controls. The preventive measures can be taken to prolong the onset of nephropathy in these patients, this increases the life expectancy.