6. **SUMMARY AND CONCLUSION:**

Diabetes mellitus is a major health problem and causes considerable morbidity and mortality primarily due to micro and macrovascular complications. The prevalence of diabetes is increasing globally and the maximum increase is expected to be in developing countries like India. India is facing a major health care burden due to the high prevalence of type 2 diabetes and there are indications that this would increase further in the next few decades. Diabetes is preventable and so are its complications. One such microvascular complication of diabetes is diabetic nephropathy. Nearly 30% of chronic renal failures in India are due to diabetic nephropathy. Nonetheless attention towards diabetic nephropathy is not directed until the patient has progressed towards the stage of renal failure. Nephropathy due to diabetes can be diagnosed very easily and can be prevented. The pathogenesis of diabetic nephropathy is multifactorial and genetic susceptibility has been proposed to be an important factor in the development and progression of diabetic nephropathy. In India different communities of people are living with different lifestyles and attitude. Some of them are more susceptible towards this diabetic nephropathy. Study related prevalence of diabetic nephropathy to specific community is very scanty. Hence the present work was initiated in Nellore and Prakasam districts of Andhra Pradesh in Settiyar (Vysya) community. This community is engaged in business which involves only seat work where there is no scope for any physical exercise and so they are more prone to diabetes and so its complications.
like diabetic nephropathy. The local medical reports suggest that there are more complaints in this particular community. After analyzing the results they were summarized and the findings were concluded as follows:

1. Present study was conducted in Settiyar community (Vysya) of Nellore and Praksam districts, A.P., India to assess the relation of diabetic nephropathy in KD and NDD with renal failures.

2. Around 200 families were screened for type II diabetic patients in Settiyar (Vysya) community in Nellore and Prakasam. A door to door survey with face-to-face interviews was carried out in the same community group to find out the known diabetic (KD) and newly diagnosed diabetic (NDD) subjects.

3. A total of 820 subjects were identified into two different groups. Selected subjects belong to an age group of 30-50 years. Among which 630 were male and 190 were female participants. In this 408 patients belongs to KD and remaining 412 belongs to NDD.

4. Blood glucose levels showed the actual status of the selected community people as diabetic and based on these two groups were separated as KD and NDD.

5. Serum creatinine values were double when compare to control indicating the chances of renal failures in the same community.

6. Selected subjects blood samples were used for the complete blood analysis and shows altered hematological parameters.

7. Subjects with microalbuminuria had higher BMI and waist circumference with higher fasting plasma glucose and longer duration
Chapter VI  

Summary and Conclusions

of diabetes. Other parameter like blood pressure did not vary significantly between the study groups.

8. In case of lipid parameters, from the results it is clearly noticed that there was a drastic enhancement in all lipid parameters except in HDL.

9. Liver function studies showed that there was a huge alteration with the control values. Indicating the altered hepatic function.

10. Analysis of thyroid hormones revealed that, the altered thyroid metabolism in the diabetic patients of selected Settiyar community explains that the elevated levels of TSH are not able to express the T3 and T4 levels.

11. Analysis of serum sodium and potassium levels of the selected subjects showed to be increased. This clearly suggests that hyperglycemia involves the electrolytes resulting in altering the sodium and potassium levels.

12. Further studies were conducted to evaluate the glomerular and tubular marker in urine as well as in serum of the control and selected community people.

13. Serum analysis of glomerular and tubular markers was shown to be decreased when compared to the controls except for β2M.

14. Results showed a drastic increase of glomerular and tubular markers, which indicates the altered renal activity in the selected community people.

15. Urine glomerular and tubular markers are shown to be increased drastically in KD and NDD, when compared to their controls.
16. An increased level of β2M as well as ACE indicates kidney failure. But to know the actual mechanism further studies were undertaken in insertion and deletion polymorphism of ACE genes.

17. The DNA samples from 100KD, 100 NDD and 60 normal healthy controls were amplified for I/D polymorphism in the ACE gene and analyzed.

18. The preferential amplification of the D allele and inefficiency of the amplification of I allele may result in the mistyping of ID heterozygotes as DD homozygotes.

19. Therefore, in order to increase the specificity of DD genotyping, all samples, identified as DD after initial amplification were reconfirmed with an insertion-specific primer pair, as mentioned in material and method section.

20. The presence of insertion sequence was revealed by the amplification of a 275 bp fragment, while DD homozygotes failed to amplify due to the lack of annealing site.

21. The frequency of D allele and DD genotype was only marginally higher in KD and NDD patients as compared to the normal controls.

22. The observed and expected genotypic frequencies were in Hardy-Weinberg Equilibrium.

23. The present study suggests that the ACE I/D polymorphism is not associated with advanced form of renal failures due to Diabetic nephropathy within the selected (Settiyaar) population.
From this it can be concluded that, there is a great need of more basic physiological studies that investigate the consequences of ACE I/D polymorphism in renal pathophysiology. Only then can one understand the impact of ACE I/D polymorphism on the onset and course of renal disease and eventually develop treatment strategies specifically adapted to certain genetic risk profile. The results also conclude that the prevalence of diabetic nephropathy in the selected community is high in case of NDD when β2M is considered as a marker. The ACE levels also proved the same. As these markers express early in the urine and serum than the routine parameters like serum creatinine and microalbumin in renal insufficiency one can better use these two markers as diagnostic aids. But the further studies have to be conducted in a larger sample in order to make use of these markers for better diagnosis of Diabetic nephropathy. Finally, one should also take into account that the impact of certain exogenous factors involved in gene-environment interactions as many exogenous factors have great impact on the development and course of disease. Such gene-environment interactions need more attention in future studies. In the present thesis these questions are addressed and also provide an overview on the vast amount of data that have been collected during the past years.