5.0 Summary

Diabetic nephropathy (DN) is one of the microvascular complications of diabetes mellitus (DM) and one of the leading causes of death among these patients. In addition to the well-known risk factors of diabetic nephropathy (age, obesity, smoking, hypertension and duration of diabetes), genetic factors have been suggested to be important determinants of the predisposition to diabetic nephropathy. Inflammatory cytokines significantly modulate the pathogenesis of diabetic nephropathy; their genetic variability may affect the susceptibility to renal progression. The stimulus for the increase in inflammation in diabetes is still under investigation; however, reactive oxygen species might be a primary source.

Conclusion and Key findings of the study

- MDA was significantly increased in patients group compared to control. GSH and SOD were significantly decreased in patients group compared to control. Increased oxidative stress, under conditions of hyperglycaemia, may be one of the probable causes for type 2 diabetic complications like diabetic nephropathy.

- The results in this study suggest that IL-1α, IL 10, IL 6 and ACE polymorphism may be associated with progression of diabetic nephropathy in type 2 diabetic patients of west India and may be responsible in part for genetic susceptibility to the progression of diabetic nephropathy.

- Higher expression level of inflammatory mediators was found in DN group compared to control group which suggests an important role of inflammation in the development and progression of DN. Inflammation is an important outcome of any kind of imbalance in the body and is therefore an indicator of several diseases, including DM and DN.

- In silico analysis revealed many inflammatory cytokine gene variants which needs to be validated. We also found many ns SNPs which are potential candidates for case-control study and have not been explored yet.