AIM & OBJECTIVES
AIM & OBJECTIVES

Diabetes which has become pandemic & leading cause of human morbidity and mortality still remains an enigma with regard to its etiopathogenesis, relation to inflammatory changes and complications. Though many studies have been conducted, the relationship between low grade inflammation and diabetic complications is still unclear. Reactive oxygen species are considered to play a central role in evolution & progression of diabetes.

**Therefore the study has been undertaken to evaluate the status of sialic acid and acute phase proteins in type 2 DM, status of oxidative stress and antioxidants and their correlation with acute phase response especially in reference to microvascular complications like diabetic nephropathy.**

The objectives of the study are to investigate the following –

1. To assess the hyperglycemia in type 2 diabetes with and without nephropathy and to correlate it with glycosylated hemoglobin and development of nephropathy.

2. To estimate the glycosylated hemoglobin in diabetics and to correlate it with the complications and duration of diabetes. Also to find correlation if any between glycosylated hemoglobin and markers of inflammation such as C-reactive protein, total Sialic acid (TSA) and ceruloplasmin (Cp).

3. To compare the estimated average glucose level (eAG) with fasting and post prandial blood glucose in terms of correlation with acute phase protein, Malondialdehyde, anti oxidants and duration of diabetes.
4. To assess renal function in type 2 diabetes with and without nephropathy by measuring serum urea, serum Creatinine, creatinine and microalbumin in urine. Evaluate the correlation of urea and Creatinine with urinary microalbumin. Further to detect the efficacy of urine albumin creatinine ratio in predicting diabetic nephropathy as compared to urinary Creatinine and microalbumin.

5. To correlate renal function tests with markers of inflammation viz C-reactive protein, ceruloplasmin and serum total sialic acid concentration in type 2 diabetic patients.

6. Estimation of lipid profile levels to assess dyslipidemia in type 2 diabetic patients and to study the relation of lipids with glycemic parameters and acute phase proteins.

7. To correlate dyslipidemia with microalbuminuria and to establish the role of microalbuminuria in predicting the cardiovascular risk.

8. To estimate serum total sialic acid concentration in type 2 diabetic subjects and to investigate its association with microvascular complications of diabetes. Furthermore to relate sialic acid levels to glycemic control and renal insufficiency.

9. To estimate acute phase proteins (hs CRP, TSA & Cp) in sera of patients with and without micro vascular complications of diabetes and their intercorrelations if any.

10. To relate total Sialic acid to Lipids and hence to predict its potential role as a marker of cardiovascular risk.

11. To determine changes in serum ceruloplasmin concentration in type 2 diabetes and to explore its association with glycemic parameters, renal function tests, acute phase proteins, Malondialdehyde and anti oxidants.
12. To determine levels of Malondialdehyde in type 2 diabetic patients to evaluate the status of oxidative stress with special reference to microvascular complication like diabetic nephropathy.

13. To relate the changes in levels of Malondialdehyde with those of glycemic parameters and acute phase proteins in type 2 diabetic patients.

14. To study endogenous antioxidant superoxide dismutase & exogenous antioxidant Vitamin C in type 2 diabetic patients to evaluate the status of antioxidant defence mechanism with special reference to diabetic nephropathy.

15. To relate the changes in levels of superoxide dismutase & Vitamin C with acute phase proteins.