**English Abstract**

Until now the relation between advanced glycation end products (AGEs) and vascular lesion is still controversial. However, the interaction of the former with a receptor triggers the synthesis of cytokines particularly interleukin 1- beta(IL-1 beta) and tumour necrosis factor- alpha(TNFalpha ). Subsequent release of nitric oxide (NO) may in turn induce certain damage to beta cell islets. Several arguments indicated that AGEs and reactive oxygen intermediates (ROIs) could alter the function of the vessel wall. Therefore, this study was undertaken to investigate the effectiveness of aminoguanidine, AG (inhibitor of AGE formation) joined with omega -3-fatty acids, omega 3FAs (anti-inflammatory immunosuppressive drug) in STZ diabetic rats. Diabetes was induced in 48 female albino Wistar rats by a single intraperitoneal (i.p.) injection of streptozotocin (STZ, 50 mg kg (-1)). Diabetic animals were treated with AG (50 mg kg(-1) ) and/or omega 3FAs (12 mg kg (-1)) daily and orally for 4 weeks. Groups of age matched diabetic rats ( n= 10) and healthy animals ( n= 10) served as positive and negative controls. At the end of the study, plasma glucose, fructosamine, total cholesterol (TC), high density lipoprotein cholesterol (HDLC), low density lipoprotein cholesterol (LDLC), the susceptibility of LDL to copper-catalysed oxidation, catalase activity, NO, IL-1 beta, TNF alpha were measured. Histopathological assessment of pancreatic slices were also determined. Diabetes remarkably increased plasma glucose, fructosamine and dyslipidaemia (increased TC, LDLC and decreased HDLC). Oxidative markers like oxidative susceptibility of LDL, catalase activity and NO levels were greatly enhanced. Finally, it increased the synthesis and release of cytokine (IL-1beta and TNF alpha). Treatment of diabetic rats with AG and omega 3FAs markedly reduced the above mentioned parameters. Combined form therapy has a better effect regarding oxidative cell markers, specifically NO level. Finally, omega 3FAs coadministration with AG nearly restored the atrophy of islets of Langerhan's and the peripheral lymphocytic infiltration compared to diabetic and AG treated groups. In conclusion, there is a direct correlation between glycation, oxidative stress and cytokine production with increased propensity of microvascular disorder in STZ diabetic rats. omega 3FA administration with AGE receptor blocker may represent a possible avenue of research for therapeutics directed for alleviating the complication associated with diabetes.