Review Article

Available online through
www.ijrap.net

IJRAP

DIABETES, DYSLIPIDEMIA, ANTIOXIDANT AND STATUS OF OXIDATIVE STRESS

Bisht Shradha*, Sisodia S S

B.N.College of Pharmacy, Udaipur, Rajasthan

Received: 08-07-2010; Revised: 12-08-2010; Accepted: 16-09-2010

ABSTRACT

The cluster of lipid abnormalities associated with type 2 diabetes is defined by increases in triglyceride (TG) and small, dense low-density lipoprotein (LDL) concentrations and decreases in high-density lipoprotein (HDL) cholesterol. Plasma LDL cholesterol levels are generally normal because the increase in the number of small, dense LDL particles is accompanied by a reduction in large LDL particles. Each of the features of diabetic dyslipidemia has been associated with increased risk of cardiovascular disease, the leading cause of death in type 2 diabetics. Increasing evidence in both experimental and clinical studies suggests that oxidative stress plays a major role in the pathogenesis of both types of diabetes mellitus. Free radicals are formed disproportionately in diabetes by glucose oxidation, nonenzymatic glycation of proteins, and the subsequent oxidative degradation of glycated proteins. Abnormally high levels of free radicals and the simultaneous decline of antioxidant defense mechanisms can lead to damage of cellular organelles and enzymes, increased lipid peroxidation, and development of insulin resistance. These consequences of oxidative stress can promote the development of complications of diabetes mellitus. Changes in oxidative stress biomarkers, including superoxide dismutase, catalase, glutathione reductase, glutathione peroxidase, glutathione levels, vitamins, lipid peroxidation, nitrite concentration, nonenzymatic glycosylated proteins, and hyperglycemia in diabetes, and their consequences, are discussed in this review. In vivo studies of the effects of various conventional and alternative drugs on these biomarkers are surveyed. There is a need to continue to explore the relationship between free radicals, diabetes, and its complications, and to elucidate the mechanisms by which increased oxidative stress accelerates the development of diabetic complications, in an effort to expand treatment options.

KEY WORDS- Diabetes mellitus, Dyslipidemia, Oxidative stress, Free radicals, Antioxidants

***For Correspondence:**
Shradha Bisht
1-TA-39, Jawahar nagar, Jaipur.
Phone- + 919887187797
Email- itsshradha30@gmail.com