

The Effect of Oxidative Stress Level in Type 2 Diabetes Mellitus Patients with Hypertension

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Received: 04-Feb-2022, Manuscript No. jdm-22-16112; **Editor assigned:** 07-Feb-2022, PreQC No jdm-22-16112(PQ); **Reviewed:** 14-Feb-2022, QC No. jdm-22-16112; **Revised:** 15-Feb-2022, Manuscript No. jdm-22-16112(R); **Published:** 22-Feb-2022, DOI: 10.35248/2155-6156.1000920

Oxidative stress have potential role in some disease like diabetes mellitus and the long period of oxidative exposure led to disease complications like hypertension and cardiac disease, the present study conducted to evaluated oxidative stress state in DM 2 patient with hypertension to detect the role of OS in diabetic complication, Reactive oxygen species (ROS) and TAO antioxidant (TAO) levels were detected in patients serum, the results show that the hypertension were observed in high age than other group in non-significant differences P (0.109), the BMI was slightly varied between groups at P (0.574). Non-significant differences appeared in FBG and HBA1c with slightly decreasing at P (0.780 and 0.068) respectively [1,2].

Significant differences P (0.000) for SYS and DIA were observed; the TAO showed low decrement in patients DM+HP and slightly elevation in ROS in same group in non-significant differences P (0.676, 0.736) respectively. The correlation coefficient between groups show that the ROS non-significant weak correlated with SYS and weak inverse with DIA in DM group. While in DM+HP group; non-significant inverse weak correlation with SYS and DIA were observed. TAO was weak invers correlated with SYS and weak positive correlated with DIA in DM and DM+HP, significant invers correlation observed between TAO and ROS in both groups, the present study concluded that the ROS elevation and TAO decrement were related with hypertension in DM patients [3].

The oxidative-redox is a system included free radicals and antioxidant molecules to balance the oxidative-redox state in the body, the long period of unbalanced of this system would lead to oxidative stress that contributed in diseases incidence and developments. The present study shows that

the DM has high level of ROS and TAO levels and this were proved by other studies. The pathophysiological and complications of DM which causes ROS that production by different mechanisms, 1; the pathway of polyol flux, 2; excessive formation advanced glycation end products, 3; high level of receptor expression of AGEs, 4; protein kinase C isoforms activation, 5; hexosamine pathway over activity, in addition to inactivation of two critical anti- atherosclerotic enzymes; the endothelial nitric oxide synthase and prostacyclin synthase. The oxidative stress contributed in the hypertension incidence by different mechanisms included vasodilator nitric oxide quenching, vasoconstrictor lipid peroxidation products generation, tetrahydrobiopterin depletion, endothelial cells and vascular smooth muscle cells damage, intracellular free calcium level elevation, endothelial permeability increased, inflammation and growth signaling events stimulation. The vascular oxidative stress can be stimulated hypertension; on the other hand it is unclear whether ROS initiate the development of hypertension. The results deal with Lassègue and Rhian that proved strong association between hypertension and oxidative stress [4,5]. The long period of oxidative stress in DM patients contributed in complications, thus it should be treated with supplements, antioxidant foods and drugs.

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