
Abstract:

Cardiovascular diseases (CVD) are the leading cause of mortality worldwide. There are several predominant factors that influence disease promotion and severity. Geographical location and demographic profile are one of the important factors for the disease outcome. Stresses, sedentary lifestyle and abnormal energy metabolism causes sustained hyperglycemia, hypertension and insulin resistance. Compelling evidence suggest that diabetes has a distinct relation with different cardiovascular disorder. Diabetes is also now epidemic worldwide. In the current study occurrence, severity and mechanism of CVD has studies in adult individuals-patients. There are different hematological and biochemical parameters like lactate dehydrogenases (LDH), (creatine phosphokinase) CPK, (creatine phosphokinase isoform mb) CPK-MB were studied in Troponin T (Trop-T) + ICU admitted patients. Prior the investigation all regulatory norms and ethical clearance were approved from the competent authority. In the patients Oxidative Stress markers like malondialdehyde (MDA), antioxidant components like non-protein soluble thiol (NPSH), Superoxide dismutase (SOD), catalase, were tested and measured. Human samples were also tested for the study of inflammatory markers like C-reactive protein (CRP), tumor necrosis factor alpha (TNF- α), interleukin (IL-6) etc. In other several In-vitro experiment with human blood samples and animal tissue slices other important parameters like nitric oxide (NO), nitric oxide synthase (NOS), Insulin, glucose transporter and stress induced protein dermcidin gene and protein expression were studied for the understanding of the mechanism of diabetes and diabetes associated CVD disorder . For the better understanding experimental rat model of high lipid and fructose fed diet (90 days iso-caloric). Rats were

Investigated to evaluate some risk factors and oxidant and antioxidant status in their serum, liver and heart tissues. Present result suggest that LDH, CPK, CPK-MB, MDA, SOD, these are expressed according to the disease severity in the patients of trop-T⁺ or trop-T⁻ status. These markers are also associated with the age and gender of the individual. Important roles of these markers are also verified and validated in our experimental rodent model. Result from animal experiment suggests that oxidative stress and inflammatory status are the prerequisite for the diabetes and CVD. These have been suggested by the student's t test, multiple comparison ANOVA test and correlation analysis. These support the interdependence among different parameters. Several In-vitro and mouse model study suggest that stress protein dermcidin isoform-2 (DCN-2) is responsible for insulin resistance and GLUT4 and NO insensitivity which results arterial endothelial disregulation, atherosclerotic plaque formation. Role of plaque rupture, platelet aggregation has been suggested to initiate the severity of the disease. Stress induced protein dermcidin has been demonstrated with high concentration in diabetic and hyperlipidemic status. The animal experiment suggests the high lipid consumption and abnormal glucose/energy metabolism may increase the systemic oxidative stress. So present investigation may be regarded as useful background for the further studies on this area. That will be helpful for better therapeutic intervention in cardiovascular disease.
