The Correlation of oxidant and Antioxidant Enzymes in Cardiovascular Patients in Iraq

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Background

Oxidative stress (OS) was defined as an imbalance between the production of reactive oxygen species (ROS) and antioxidant defences in the cell, which leads to oxidative damage of cell and caused many disorders and diseases.

Aims of the research

To identify the interactions and relationships between oxidant and antioxidant enzymes with risk factors in patients admitted to Cardiac Care Unit and statistically evaluated to improve the medical approach to these cases.

Methods and Materials

Patients between (35-70)years admitted to Cardiac care unit at Ibn Sina Hospital Educational in Ninawa Governorate, Iraq . Were included in research.
Information and risk factors as age, body mass Index , gender, smoking ,chronic diseases history , treatment , sport , length of Cardiac care stay and educational status were recorded also compared with healthy people age between (35-70)years .
Blood samples were taken and the serum was separated and used to estimate the following biochemical parameters: activity of enzymes (Peroxidase, lacto peroxidase , and myeloperoxidase ,glutathione-S transfers, glutathione peroxidase, arylesterase and catalase), also the concentration of Malondialdehyde(MDA) , total lipids, total cholesterol, triglyceride, lipoproteins and the risk factor ratio were determined by using BIOLABO kit , also data analyzed by using statistical software package; SPSS version , a $p<0.05$ is considered as significant .

Results

The results demonstrated a significant decrease in the activity of antioxidant enzymes (glutathione –S transfers ,glutathione peroxidase , arylesterase and catalase) in patients group comparison to control. The results also showed a significant increase in the activity of oxidant enzymes (Peroxidase, lacto peroxidase , and myeloperoxidase)in serum of cardiovascular patients group for both sex in comparison with control.
The results also indicated a significant increase in the concentration of Malondialdehyde(MDA) , total lipids, total cholesterol, triglyceride, Very low density lipoprotein-cholesterol (VLDL-C), Low density lipoprotein-cholesterol (LDL-C)and the risk factor ratio (total Cholesterol/ HDL)in serum patients . While a significant decrease in the concentration of High density lipoprotein-cholesterol (HDL-C) in serum patients compared with control.
Correlation coefficients between oxidant and antioxidant enzymes were examined in control and cardiovascular patients . The results showed that there was a significant positive correlation between the activity of myeloperoxidase ,Peroxidase and lactoperoxidase , also a significant positive correlation between the activity of glutathione peroxidase, glutathione s-transferase and the concentration of glutathione also a significant negative correlation with concentration of MDA in control and patients group.

Conclusions

These results provide evidence of a major role for antioxidant enzymes in cardiovascular disease . Also, in this research , statistical analysis found important relationships and interactions between biochemical parameters and Risk factors of Cardiovascular Patients . According to the characteristics of the patients will be Planning the treatment to increase healing rates .

Keywords

Antioxidant, Cardiovascular Disease, Enzymes, Oxidative Stress, Risk factors .

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