Estimation oxidant and Anti-oxidant of patients with changeful heart discomfort and myocardial breach of Diwaniya-Iraq

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Abstract. The present study aimed check the relation amidst level oxidate and Anti oxidants of person at changeful heart discomfort (type of heart disease) myocardial breach while identify role oxidate in develop disease of individual province of diwaniya-iraq .the study of patients who are divided into three category (A) included 45 patients changeful heart discomfort pectoris in different age , category (B) included 45 patients with acute myocardial breach at different age and category 45 (C) as control .The results demonstrate show a significant decrease (p≥ 0.05) in vitamin E, C, glutathion peroxtidas and Gluthathione ( GSH ) but the reverse was significant increase (p≤ 0.05) caeruloplasmin (ferroxidase enzyme), and Malondialdehyde(MDA) of individual changeful heart discomfort pectoris and myocardial breach .The conclusion of study the negative role of high free radical was subsisted heart edisorder progress. The acute myocardial breach work reduction of O2 surrender to myocardic lead produce of interactive O2 groupe that effective role in the development and generate heart disorder .Keyword: caeruloplasmin ,VitaminE, VitaminC, glutathione peroxidase, myocardial breach changeful heart discomfort.

1. Introduction

Insultus cardiac illness of smart plurality of situation , is rise by an imponderables amidst the myocardial O2 requirement while the blood maunder (1) .Oxidative stress are essentially an imponderables between the produce of free radical and the ability of the body to abolish scavgetoxify harmful effects by equation by Anti oxidants such as oxygen radical (ion), hydrogen peroxide, and ion peroxide (OH) , are produce out or intra cellular while spend poisonous influence on cells. The heart is one of the prime organs influence by free radicals. New proof propose that Oxidative stress is a more divisor in many guises of problem cardio vascular illness (2) the cellular reaction material lead to O2 generate potential harmful reactive oxygen group, comprise Superoxide Anion O₂(−) or O₂−.Hydrogen peroxide(H₂ O₂ ) and hydroxyl radical(•OH). In physiology conditions, the rate and quantity of oxidants construction are equilibrium rate of oxidants remove. Conjugation, an imponderables amidst chemical that induce Oxidative stress and Anti oxidants results in reactive oxygen group,abnormal state of the over production of oxidants that bash cellular anti oxidant content. This induce clue that increase reactive oxygen group and related oxidative injury are broker of blood vascular system damage of heart (3) the chemical metrial produce is an atom,molecule.
and/or ion that has an unpaired valence electron that lead an risk role in the injury tissue, cell membrane, change structure cytoplasm in different organ of body. Some side effect of radical are mighty of injury structure of all biochemical component: including nucleic acid (DNA, RNA), protein, fatty acid, lipo protein, carbohydrates and connective tissue macromolecules (4).

2. Material and method

The present study was fulfilled of AL. Diwaniya teaching hospital, especially in the coronary care unit and the laboratories during the duration from 10/ 9/ 2017 to 31/ 3/ 2018. The study has been conducted on the total number of patients who are divided into 3 groups:

GROUP A: 45 patients with changeful heart discomfort pectoris [(30) males, (15)females[(with age range (25—83)].

GROUP B: 45 patients with acute myocardia breach [(25)males, (20) females] different Age range (40—85).

GROUP C: consisting of 45 health subjects [(30) males,(15 ) females ] with no history of systematic illness.

Collection of sample: From the patients with changeful heart discomfort, myocardia breach (10mL) blood sample was pick is put into a glass tube without anticoagulant. then they were centrifuged at 3000 rpm for 5 mins. The serum was separate and store at (-20°C) until the time of the analysis chemical.

The chemical analysis: The biochemical parameters which were studied in this study contain malondialdehyde (MDA), caeruloplasmin (ferroxidase enzyme), and which were measured according to (5-6). Glutathion Peroxidas GPx The glutathion peroxidase activity was estimation (7). VitaminC was determined by titration procedure Varley et al (8). Measure reduced glutathion in serum is essessment (9) vitaminE rating by Emmerie-Engel(10).

Statistical Analysis: Analyzed data were fulfilled by using SPSS program, a statistical significance of differences in data among studied groups was tested with F- test (ANOVA). The values were given in tables as (mean±sd) and were statistically consider significance of probability (p≤0.05).

3. Result

Malondialdehyde and caeruloplasmin (ferroxidase enzyme), changeful heart discomfort pectoris, myocardia breach and control (table 1)

The Malondialdehyde and caeruloplasmin )ferroxidase enzyme(watching increase significantly(p≥0.05) in category changeful heart discomfort pectoris, myocardia breach compared with control. Also watching significantly different between category changeful heart discomfort pectoris, myocardia breach in MDA

Table.1: Malondialdehyde and caeruloplasmin (ferroxidase enzyme), changeful heart discomfort pectoris, myocardia breach and control

| Group                          | No. | Serum Malondialdehyde (nmol/L) | caeruloplasmin (mg/L) | P > |
|-------------------------------|-----|--------------------------------|----------------------|-----|
| Control                       | 45  | 13.7 ±3.4A                     | 165.70± 76a          | 0.05|
| changeful heart discomfort     | 45  | 73.5 ±15.6B                    | 350.30±9b            | 0.04|
| myocardia breach              | 45  | 98.13 ±20.7C                   | 366.14± 10b          | 0.03|
The data refers to mean ± S.D. The latter (A, B, C) where considered significantly different (p ≤ 0.05), No.: number subjects, MB: myocardia breach patients
CHD: changeful heart discomfort patients

Oxidative stress: reduced glutathion, glutathione peroxidase, vitaminC, and vitaminE table (2)

The anti oxidant Glutathione reduced, Glutathion peroxidase, VitaminC, and VitaminE was significantly decreased (p ≤ 0.05) in myocardia breach patients, changeful heart discomfort category compared with control. Also watching significantly different between category myocardia breach, changeful heart discomfort.

Table. 2: Oxidative stress: reduced glutathion, glutathione peroxidase, vitaminC, and vitaminE

| Group | No. | Glutathion reduced (µM/l) | Glutathion Peroxidase (U/gm Hb) | VitaminC mg/dl( | VitaminE mg/dl( | P > |
|-------|-----|--------------------------|---------------------------------|----------------|----------------|-----|
| Control | 45 | 78.7 ± 3.7 A | 1.7 ± 1.5 A | 1.9 ± 1.4 A | 1.7 ± 0.1 | | |
| CHD | 45 | 60.4 ± 2.5 B | 0.80 ± 0.55 B | 0.75 ± 0.49 B | 0.79 ± 0.1 | | |
| MB | 45 | 40.9 ± 2.6 C | 0.70 ± 0.40 C | 0.70 ± 0.3 B | 0.65 ± 0.3 | | |

The data refers to mean ± S.D. The letter (A, B, C) where considered significance different (p ≤ 0.05), No.: number subject, CHD: changeful heart discomfort, MB: Acute myocardia breach

4. Discussion
4.1. Malondialdehyde and caeruloplasmin (ferroxidase enzyme)

Significant increase in Malondialdehyde measure (p ≤ 0.05), a lipid peroxidation outcome, the result show of elevated Oxidative stress in CHD subject agree with work (12,13) who exhibit a reduction in anti oxidant material and elevated in degradation of lipids (Malondialdehyde) output of subject with CHD, MB. Mention Al-Fartosi et al that the measure of serum MDA increase significantly because during acute coronary syndromes (CHD, MB) by multiple processes are thought to be share e.g. (leukocytosis). It seems logical to expect a raised MDA measure, by an action of oxygen group active during the phagocytosis process (14). Also, mention Misra et al that the heart is the mine organ damage by group oxygen active. Recent proof reference that Oxidative stress is a common divisor in multiple portion of cardio vascular disorder. as myocardiaic Oxidative stress, the genesis at group oxygen active is elevated and the deterrence apparatus of immunity cell (muscle cell) are decreased. Source of group oxygen active in cardiac muscle cell (Cardiomyocytes) may be Mitochondrion Electron Transport chain(ETC), Nitric oxide synthase, NADPHoxidase, xanthine oxidas, and Lipooxygenase, Cyclooxygenase and the Auto-Oxidation of different material, especially cate cholamines. In acute myocardiaic breach (MB), two distinguished variety injury induce in heart: Insultus illness and reperfusion harm, that progressive of mitochondria inhibited cardio cells (2) that agree with study condition. Caeruloplasmin is an α2-globulin consist copper, an serious extracellular anti oxidant (15). Caeruloplasmin activate as an anti oxidant (host vindication mechanism) through ferroxidase activate superoxide radical scavenging, and copper donor activite (16) An intense phase respond. It is demonstration that caeruloplasmin manifest as chemicals that induce and cause Oxidative modificat of low density lipo protein. This tick that ferroxidase enzyme is an independent danger factor for cardio vascular problem (17).

4.2. Glutathion reduced, Glutathion peroxidase, VitaminC, and VitaminE
In CHD, MB persons, we found significance decrease measure of vitamins E, C in comparison with group healthy. This is in correspondence with study of Singh et al. (18), that demonstrate significance lower in vitamins E, A and β-carotene, whereas lipid peroxides were significantly higher in CHD patient comparative with persons health that express harsh injury of the anti oxidant regulation, that become incapable to fighting oxidative stress and infection. We discovery illustrate the survival of an aberrant balance amidst the Oxidative and keep mechanism in CHD patient. Also, refer Bashar and Akhter that a cause for raise lipid peroxidat (Malondialdehyde) of subject with CHD that reduce enzyme and Non-Enzyme anti oxidant protective suit. Reduced glutathion is influential indoor non-enzymatic anti oxidants. the equipping a sulphhydryl (SH) grouping for direct scaveng reaction. Reduced glutathion work both as a material in the scaveng reaction catalyzed glutathion peroxidases and as a scavenger of peroxyl radical. The data of this study show that reduced glutathion measure was significance decrease in patient as comparative control and a negative role was notes among subject health and patient in measure Malondialdehyde (19). this study agree with the study condition.

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