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Estimation oxidant and anti oxidant of patients with changeful heart discomfort and myocardiac breach of Diwaniya-Iraq

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ABSTRACT:
The present study aimed check the relation between level oxidants and Anti- oxidants of person at changeful heart discomfort (type of heart disease) , myocardiac breach while identify role oxidants in develop disease of individual province of Diwaniya-Iraq. the study of patients who are divided into two group patient (A) included 45 patients changeful heart discomfort pectoris in different age , patient (B) included 45 patients with acute myocardiac breach at different age and group (C) 45 as control health .The results demonstrate show a significant decrease ($p \leq 0.05$) in vitamin E, C, glutathion peroxidas and Glutathione (GSH) in group A,B and significant increase ($p \leq 0.05$) in caeruloplasmin , ferroxidase enzyme, and Malondialdehyde (MDA) of individual changeful heart attack and myocardiac breach .The conclusion of study the negative role of high free radical was subsisted heart disorder progress. heart attack reduces oxygen access to the heart muscle. Oxygen depletion leads to increased free radicals that contribute to heart problems**.**

KEYWORDS

caeruloplasmin ,VitaminE, VitaminC, glutathione peroxidase, myocardiac breach changeful heart discomfort:

1. INTRODUCTION

Injury of cardiac illness of severe common of patient heart, is rise by an imponderables between the myocardiaic O2 requirement and the blood supply (Ferrari *et al* , 1991) Oxidative stress is essentially an imponderables between the produce of free radical and the ability of the body abolish scavge toxify harmful effects by equation by Antioxidants 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 . Recent discoveries have proved that Oxidative stress is a more effect in many guises of problem cardio vascular disease (Misra *et al* , 2009) the cellular reaction material lead to generate of reactive oxygen species comprise Superoxide Anion O2(−) or Hydrogen peroxide(H_2O_2) and hydroxyl radical(•OH). In normal physiolocal conditions, A balance between the production of oxidants and the effectiveness of antioxidants leads to cellular equilibrium, an imponderables between chemical that induce Oxidative stress and Anti-oxidants results in reactive oxygen specie, abnormal state of the over production of oxidants that bash cellular antioxidant content. This induce increase of reactive oxygen species which related to oxidative injury of blood vascular system then damage of heart (Touyz,2003) the chemical metrial[1] 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 deferent organ of body . Some side effect of free radical are mighty of injury structure of all bio chemical component ; including nucleic acid (DNA,RNA), protein, fatty acid, lipoprotein carbohydrates and connective tissue macromolecules (Carrol,1987).

2. MATRIAL AND METHOD

The present study has been done in AL. Diwaniya teaching hospital, especially in the coronary care unit and the laboratories during the period from 10/ 9/2017 to 31/ 3/ 2018. The study has been conducted on that are divided sample into 3 groups:-

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

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GROUP B: 45 patients with acute myocardial breach [(25)males, (20) (females)] different Age range (40—85).
GROUP C: consisting of 45 health [(30) males,(15) (females)] with no history of systematic illness.

2.1 COLLECTION OF SAMPLE

From the patients with changeful heart discomfort, myocardia breach (10mL) blood sample was withdrawn and put into a tube without anticoagulant. then they were centrifuged at 3000 rpm for 5 mins. The serum was separate and store at (-20c0) until the time of the analysis chemical.

2.2 THE CHEMICAL ANALYSIS:

The biochemical parameters which were studied in this study include malondialdehyde (MDA), caeruloplasmin)ferroxidase enzyme(,and which were measured according to (Ceconi, 1991; King,1965). Glutathion Peroxidas GPx The glutathion peroxidase activity measured according (Paglia and Valentine, 1967). VitaminC was determined by titration procedure (Varley *et al*). The levels of reduced glutathion in serum was estimated according to (Beutler et al ,1988) vitamin E rating by Emmerie-Engel (Emmerie and Engel, 1938).

2.3 STATATICAL ANALYSIS :

Data was analysed 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 ±SE) and The differences were statistically significant at a probability level ($p \leq 0.05$).

3.RSULT

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

The level of MD and caeruloplasmin increased significantly($p \leq 0.05$)in category changeful heart discomfort pectoris an myocardia breach compared with control. Also noted significantly different between category changeful heart discomfort pectoris, myocardia breach in MDA significantly different between patient myocardia breach, changeful heart discomfort.

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
CHD	45	73.5 ±15.6b	350.30±9b	0.04
MB	45	98.13 ±20.c	366.14± 10b	0.03

The data refers to mean ± S.D. ,The latter (a, b, c) where considered significantly different ($p \leq 0.05$),No.: number subjects, MB: myocardia breach patients
CHD: changeful heart discomfort patients

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

The antioxidant Glutathione reduced, Glutathion peroxidase, VitaminC, and VitaminE was significantly decreased($p \leq 0.05$) in myocardia breach patients, changeful heart discomfort gategory compared with control. Also watching significantly different between patient myocardia breach, changeful heart discomfort

Group	No.	Glu reduced (µM/ l)	Glu peroexidae(U/g mHb	VitamC (mg/dI)	VitamiE (mg/dl)	P<
Contol	45	8.7 ± 3.7 A	1.7 ± 1.5 A	1.9 ± 1.4 A	1.7 ± 1.3A	.01
HD	45	60.4 ± 2.5 B	0.80 ± 0.55 B	0.75 ± 0.49 B	0.79 ± 0.50 B	.01
MB	45	40.9 ± 2.6 C	0.70 ± 0.40 C	0.70 ± 0.3 B	0.65 ± 0.3 C	.02

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

4.DISCUSSION

4.1 Malondialdehyde and caeruloplasmin (ferroxidase enzyme)

Significant increase in Malondialdehyde level (p≤ 0.05), a lipid peroxidation outcome, the result show of elevated Oxidative stress in. agree with work (Dubois *et al* ,1993) who exhibit a reduction in anti- oxidant material and elevated in degradation of lipids (Malondialdehyde) output witt CHD, MB at the measure of serum MDA increase significantly during acute coronary syndromes (CHD, MB) Due to multiple processes that possible involved in leucocytosis multiple processes are thought to be share e.g. (leukocytosis). It seems logical to expect a raised MDA measure , by an action reactive oxygen species during the phagocytosis process (Al-Fartosi *et al* ,2010l). the heart is the min organ damage by reactive oxygen specie- Re Recent investigation that Oxidative stress is a common divisor in multiple portion of cardio vascular disorder . as myocardiac 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 Mitochondrial Electron Transport chain(ETC), Nitric oxide synthase, NADPH oxidase, xanthine oxidase, and Lipoxygenase, Cyclooxygenase and the Auto-Oxidation of different material, especially catecholamines. In acute myocardiaic breach (MB), two distinguished variety injury induce in heart: Insultus illness and reperfusion harm, that progressive of mitochondria inhibited cardio cells that agree with study condition. Caeruloplasmin is an α2-globulin consist copper, an serious extracellular antioxidant (Misra *et al* , 1993). Caeruloplasmin activate as an antioxidant (host vindication mechanism) through ferroxidase activite superoxide radical scavenging, and copper donor activite (Fridovich,1978) An intense phase respond . It is demonstration that caeruloplasmin manifest as chemicals that induce and cause Oxidative modificat of low denisity lipoprotein . This tick that ferroxidase enzyme is an independent Risk factor factor for cardio vascular problem (Fox et al ,*1978*).

4.2 Glutathion reduced, Glutathion peroxidase, VitaminC, and VitaminE

In CHD, MB persons , we found significance decrease measure of vitaminsE , C in comparison with group healthy . This is in correspond with study of (singh *et al*,1994) that demonstrate significance lower in vitamins C,E,A and ß carotene, whereas lipid peroxides were significantly higher in CHD patient comparative with persons heath . 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 btween the Oxidative and keep mechanism in CHD patient. also, showed Bashar and Akhter that a cause for raise lipid peroxidase (Malondialdehyde) of patient with CHD that reduce enzyme and Non-Enzyme anti- oxidant Protective system. Reduced glutathion is influential indoor non-enzymatic anti-oxidants.. It act in two direction as a material in the scavenge reaction catalyzed glutathion peroxidase and as a scavenge of peroxyl radical. The data of this study show that reduced glutathion level decrease in patient as comparative control. the negative role was notes among health and patient of level Malondialdehyde (Bashar and Akhter, 2014) .this study agree with the study condition.

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