CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

http://doi.org/10.5281/zenodo.3152091

Available online at: http://www.iajps.com **Research Article**

ANALYSIS OF LEVEL OF ANTIOXIDANTS IN CHRONIC LIVER METASTASIS PATIENTS IN PAKISTAN

Dr Muhammad Asim Shahzad[1], Dr Muhammad Shakeel[1], Dr Muhammad Hafeezullah[1]
[1]Health Department Punjab

Article Received: March 2019 **Accepted:** April 2019 **Published:** May 2019

Abstract:
Introduction: *The formation of reactive oxygen species (ROS) is a normal consequence of essential biochemical processes.* ***Objectives of the study:*** *The main objective of the study is to find the role of antioxidants in chronic liver metastasis patients in Pakistan.* ***Material and methods:*** *This cross sectional study was conducted in Health department of Punjab during March 2018 to September 2018. The data was collected from 100 patients of hepatitis who visited the OPD of the hospital regularly. This study was carried out on 100 patients who were categorized into two groups i.e., control and HCV patients. The blood was collected from a cuboital vein of patients and serum was separated within one hour by centrifugation.* ***Results:*** *The data was collected from 100 patients. The level of SOD, CAT, GSH and MDA were decreases in diabetic HCV patients as compared to normal and simple HCV patients. The important biomarker is MDA and SOD. Significant differences according to the patients' gender and age were observed in the groups, but neither age nor gender influenced changes in the GST and GSH levels.* ***Conclusion****: It is concluded that antioxidants levels have been related to various disease processes and play a significant role in the pathogenesis of liver complications. Their plasma levels are usually used as a marker of lipid peroxidation.*

Corresponding author:
Dr.Muhammad Asim Shahzad,
Health Department Punjab

QR code

Please cite this article in press Muhammad Asim Shahzad et al., ***Analysis Of Level Of Antioxidants In Chronic Liver Metastasis Patients In Pakistan.,*** *Indo Am. J. P. Sci, 2019; 06(05).*

INTRODUCTION

The formation of reactive oxygen species (ROS) is a normal consequence of essential biochemical processes. However, the excessive formation of ROS and their reactive derivatives induces oxidative stress, which is associated with different chronic pathologic conditions, including cancer as well as liver diseases. Hepatitis C virus (HCV) is one of the main causative agents of chronic viral hepatitis [1]. Chronic hepatitis C can progress to cirrhosis and eventually to hepatocellular carcinoma over a period of 20 to 30 years. The mechanisms by which HCV causes cell damage are not well understood. Different mechanisms including immunological liver damage, direct cytotoxicity mediated by different viral product and inductions of oxidative stress have been suggested as playing a pathogenic role in this infection [2]. It has been suggested that HCV may cause oxidative stress in infected cell [3]. Several lines of evidence support this contention, including the existence of activated glutathione turnover, the presence of increased levels of lipid peroxidation products and augmented iron stores in the liver, and the finding of diminished reduced glutathione values in peripheral blood mononuclear cells and erythrocytes [4].

Lipid peroxidation is a free radical activity, plays a significant role in the development of complications in diabetes. It has been observed that HCV patients have enhanced oxidative stress indicated by increased free radical production [4]. MDA is one of the products of lipid peroxidation and was commonly used to determine the oxidant or antioxidant balance in the patients of diabetes mellitus as it is stable and easily assessable.

Oxidative stress (OS) is a process whereby the body receives stimulation from harmful endogenous or exogenous factors. Free radicals, including reactive oxygen species (ROS) and reactive nitrogen species (RNS), which are common metabolic products of several oxidation-reduction (redox) reactions in the cells, are increased when OS occurs. OS also induces DNA oxidative damage and abnormal protein expression, placing the body into a state of vulnerability [5]. This is closely related to the occurrence and development of various diseases such as diabetes, cancer, and cardiovascular and nervous system diseases. A better understanding of the mechanisms of OS on human illnesses is very important for disease prevention and treatment [6].

Objectives o the study

The main objective of the study is to find the role of antioxidants in chronic liver metastasis patients in Pakistan

MATERIAL AND METHODS:

This cross sectional study was conducted in Health department of Punjab durinf March 2018 to September 2018. The data was collected from 100 patients of hepatitis who visited the OPD of the hospital regularly. This study was carried out on 100 patients who were categorized into two groups i.e., control and HCV patients. The blood was collected from a cuboital vein of patients and serum was separated within one hour by centrifugation. The serum samples were evaluated for antioxidants content and alanine aminotransferase (ALAT) activity to assess the liver damage and lipid peroxidation by the method of Ohkawa et al. (1979). The ALAT was measured by commercially available kit.

Statistical Analysis

Statistical analysis (Anova Test and Post Hoc) was performed using the SPSS software program (17.0).

RESULTS:

The data was collected from 100 patients. The level of SOD, CAT, GSH and MDA were decreases in diabetic HCV patients as compared to normal and simple HCV patients. The important biomarker is MDA and SOD. Significant differences according to the patients' gender and age were observed in the groups, but neither age nor gender influenced changes in the GST and GSH levels.

Table 01: Analysis of level of antioxidants in all groups.

No.of Observation		**Analysis of blood**	**Normal µg/mL**	**HCV µg/mL**	**HCV/Diabetes) µg/mL**
01		**SOD**	0.32±0.00	0.33±0.23	0.39±0.00
02		**CAT**	4.16 ±0.00	0.90±0.00	0.43±0.39
03		**GSH**	1.89 ±0.00	2.48±1.29	3.23±0.03
04		**MDA**	2.35±0.00	4.26±0.00	4.95±0.97
05		**ALAT (IU/L)**	31.99±4.06	63.82±1.45*	108±1.66*

DISCUSSION:

Oxidative stress develops when the disturbances between reactive oxygen forms are produced in excess and the factors preventing their harmful effect occur. Enzymatic antioxidant defense of the organism includes: SOD, CAT, and GSH-Px [7]. Superoxide dismutase protects a cell from toxic effect of superoxide radicals as it catalyzes the dismutation reaction of the radicals [8]. Glutathione peroxidase decomposes hydrogen peroxide but it also converts lipid peroxides to harmless molecules protecting the cells from the consequences of lipid peroxidation. GSH-Px removes H_2O_2 by the oxidation of reduced glutathione. Oxidized glutathione (GSSG) is produced and it is reduced again by glutathione reductase, and the NADPH (produced in pentose cycle) [9]. Oxidative stress has been detected in almost all clinical and experimental conditions of the chronic liver diseases. There are many studies about the oxidant stress in chronic hepatitis C patients [10].

CONCLUSION:

It is concluded that antioxidants levels have been related to various disease processes and play a significant role in the pathogenesis of liver complications. Their plasma levels are usually used as a marker of lipid peroxidation.

REFERENCES:

1. Paradis V, Mathurin P, Kollinger M, Imbert-Bismut F, Charlotte F, Piton A: In situ detection of lipid peroxidation in chronic hepatitis C:correlation with pathological features. J Clin Pathol. 1997, 50: 401-406.

2. Irshad M, Chaudhuri , Joshi YK: Superoxide dismutase and total anti-oxidant levels in various forms of liver diseases. Hepatol Res. 2002, 23: 178-184. 10.1016/S1386-6346(01)00181-4.

3. Parola M, Robino G: Oxidative stress-related molecules and liver fibrosis. J Hepatol. 2001, 35: 297-306. 10.1016/S0168-8278(01)00142-8.

4. Malik A, Qureshi MS, Manan A, Saleem S, Munir M, Fatima A, Arooj M and Qazi MS. Assessment of oxidative stress in hepatitis C patients receiving interferon therapy. Pakistan J Med Dent., 2013; 2(4): 10-15.

5. Maritim AC, Sanders RA and Watkins JB. Diabetes, oxidative stress, and antioxidants. J Biochem Mol Toxicol., 2003; 17(1): 24-38.

6. Matsunami T, Sato Y, Sato T and Yukawa M. Antioxidant status and lipid peroxidation in diabetic rats under hyperbaric oxygen exposure. Physiol Res., 2010; 59: 97-104.

7. Nagoev BS, Abidov MT and Iyanova MR. LPO and free radical oxidation parameters in patients with acute viral hepatitis. Exp Biol Med., 2002; 289(134): 557-58.

8. Ngaiza JR and Doenhoff MJ. Blood platelets and schistosome egg excretion. Exp Biol Med 1990; 193(1): 73-79

9. Yasuyama T, Inoue K, Kojima T, Sasaki H: Activities, electrophoretic profiles and immunolocalization of superoxide dismutase in human liver specimens. Jpn J Med. 1988, 27: 34-41.

10. Abe Y, Ueda T, Kato T, Kohli Y: Effectiveness of interferon, glycyrrhizin combination therapy in patients with chronic hepatitis C. C Nippon Rinsho. 1994, 52: 1817-1822.