CHAPTER 4

EVALUATION OF TOTAL OXIDANT AND ANTIOXIDANT LEVELS IN CHRONIC HEPATITIS D AND INACTIVE HEPATITIS B PATIENTS

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Introduction

Hepatitis D virus (HDV) is a small defective RNA virus containing approximately 1700 nucleotides and requires Hepatitis B virüs (HBV) for replication and assembly processes (Flores, Ruiz-Ruiz, & Serra, 2012). HDV infection is a major concern especially in the Asia-Pasific countries which have favorable conditions for the spread of HBV (Abbas, Jafri, & Raza, 2010). Approximately 18 million people amongst 350 million HBV carriers are estimated to be infected with HDV(Fonseca, 2002). HDV infection may occur as acute delta co-infection, superinfection, or chronic delta hepatitis. Chronic Hepatitis D (CHD) is diagnosed with anti-HDV positivity of longer than six months and HDV RNA positivity (Negro & Rizzetto, 1995).

Reactive oxygen species (ROS) are "oxygen-containing highly reactive molecules" which occur during the body's metabolic reactions. They can damage cellular molecules such as DNA, proteins and fats. The inbalance between the generation and the removal rate of ROS leads to oxidative stress (Wu & Cederbaum, 2003). Tissue damage due to oxidative stress may play a role in the pathogenesis of diseases such as diabetes mellitus and Alzheimer's disease(Altan & et al., 2006; Tayler & et al., 2011). Erel had described automated methods for measuring total oxidant status (TOS) and Total Antioxidant Status (TAS) against free radical reactions (Erel, 2004, 2005).The TOS assay measured the ferric ions occuring by the oxidation of ferrous ion in the presence of several oxidant species. The TAS assay was based on measuring the absorbance of colored dianisidyl radicals which were produced by

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Conclusions

Our findings show that patients with CHD were influenced by oxidative stress, resulting in significantly lower levels of TAS and increased TOS levels. Notably, inactive HB patients were also affected by oxidative stress when compared with the control group. Since interferon treatment has been reported to normalize the virus-induced oxidative status, it should be considered in inactive HB patients. Further investigations are recommended to confirm this suggestion.

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