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CORRELATION OF TOTAL ANTIOXIDANT STATUS (TAS) WITH DNA DAMAGE IN HIV/AIDS PATIENTS

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ABSTRACT

Objective: The search of a suitable biomarker for an impact of antiretroviral therapy (ART) on oxidative stress and resultant deoxynucleic acid (DNA) damage in human immunodeficiency virus and acquired immune deficiency syndrome (HIV/AIDS) patients is ongoing. There is urgent need of such biomarker that could alert the clinician to investigate further non-AIDS-related diseases in HIV/AIDS patients taking antiretroviral therapy. Such a tool should be inexpensive and facilities for its determination easily available. The objective of this study was to explore total antioxidant status (TAS) as a biomarker for oxidative DNA damage in HIV/AIDS patients with ART.

Methods: This was a cross-sectional study involving 300 HIV-positive and 100 HIV-negative subjects have aged 20–60 y. We used plasma levels of the oxidized base, 8-hydroxy-2-deoxyguanosine (8-OHdG), as our biomarker of oxidative DNA damage. 8-OHdG was measured with the highly sensitive 8-OHdG check enzyme-linked immunosorbent assay (ELISA) kit.

Results:The varying ART has not had much effect on TAS levels, but there were different levels of DNA damage in ART first line, ART second line and ART not yet started patients. There is a negative correlation between TAS & DNA damage.

Conclusion: In this study, we observed that ART plays a significant role in the oxidative DNA damage. Decreased TAS is associated with increased DNA damage.

Keywords: Human Immunodeficiency virus (HIV) infection, Insulin resistance, DNA damage, 8-OH-dG.

INTRODUCTION

Antiretroviral therapy has been a spectacular success. For those who are motivated to take therapy and who have access to lifelong treatment, AIDS-related illnesses are no longer the primary threat, but a new set of HIV-associated complications have emerged, resulting in a novel chronic disease that for many will span several decades of life. Treatment does not fully restore immune health; as a consequence, the number of inflammation-associated and/or immunodeficiency complications such as cardiovascular disease and cancer