Urinary Advanced Oxidation Protein Product (AOPP): A Potential Oxidative Damage Marker for Cancer

Authors: S Chandramathi, K Suresh, ZB Anita, UR Kuppusamy
DOI: 10.7727/wimj.2012.234

ABSTRACT

Objective: Oxidative stress has been implicated in the pathophysiology of various life threatening diseases namely cancer, cardiovascular disease and diabetes. This study aims to compare the severity of oxidative damage in cancer and some factors that may influence the levels of urinary oxidative biomarkers. The factors were sample collection period, cancer stages and lifestyle disease conditions (which are known to be associated with oxidative stress) such as diabetes with and without hypertension.

Methods: The effects of the above mentioned factors on the levels of urinary advanced oxidation protein product (AOPP) and other oxidative indices such as hydrogen peroxide \( \left( \text{H}_2\text{O}_2 \right) \), malondialdehyde (MDA) and ferric-reducing antioxidant power (FRAP) were evaluated according to well-established methods.

Results: The period of sample collection did not show any significant difference in the parameters tested. The levels of oxidative stress in breast and colorectal cancer patients that generally increased with the cancer stages showed that cancer progression correlates with high oxidative damage. Comparison between diabetes with and without hypertension did not give any significant difference in the parameters tested. Among all the four oxidative indices, the level of AOPP in breast, colorectal and other types of cancers were significantly higher compared to diabetes with or without hypertension.

Conclusions: The oxidative damage to protein is significantly higher in cancer and may potentially serve as non-invasive oxidative biomarker for this disease.

Received: 18 Dec, 2012
Revised: 03 Jun, 2015
Accepted: 10 Aug, 2015

Keywords: cancer, diabetes, free radicals, non-invasive, oxidative damage,

Disclaimer

Manuscripts that are Published Ahead of Print have been peer reviewed and accepted for publication by the Editorial Board of the West Indian Medical Journal. They appear in their original format and have not yet been copy edited or formatted in the style guide of this Journal. While accepted manuscripts are not yet assigned a volume, issue or page numbers, they can be cited using the DOI and date of e-publication. See our Instructions for Authors on how to properly cite manuscripts at this stage. The contents of the manuscript may change before it is published in its final form. Manuscripts in this section will be removed once they have been issued to a volume and issue, but will still retain the DOI and date of e-publication.

Become a subscriber to access the full article.

https://www.mona.uwi.edu/fms/wimj/article/2707