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EFFECTS OF 2-WEEK VITAMIN C SUPPLEMENTATION IN OCCUPATIONALLY LEAD EXPOSED ARTISANS FROM A MECHANIC VILLAGE IN ABEOKUTA, NIGERIA.

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ABSTRACT

This study investigated the physiological and biochemical effects of leaded products especially gasoline in occupationally exposed artisans. The correlation between blood lead levels and some biochemical parameters and the ameliorative effects of Vitamin C were also determined. Plasma levels of Vitamin C, urinary excretion of lead, activities of the enzymes: Acid Phosphatase (ACP), Alkaline Phosphatase (ALP), Glutamic-Oxaloacetic transaminase (GOT) and Glutamic-Pyruvic transaminase (GPT), with blood pressure, urine pH and specific gravity in relation to blood lead levels were determined in 32 artisans and 15 control before and after Vitamin C regimen. Compared to the control, the before Vitamin C administration, blood lead levels, urinary excretion of lead and the activities of the enzymes (ACP, ALP, GOT and GPT) were significantly higher while plasma Vitamin C was lower ($P<0.05$) in the artisans. There was also a positive correlation, which was statistically significant ($P<0.01$) between blood lead levels and the biochemical parameters except urine lead levels and activity of ALP. After a 2-week Vitamin C therapy, blood lead levels and the activities of the enzymes (ACP, GOT and GPT) were significantly reduced ($P<0.05$) in the artisans. Increased significantly, ($P<0.05$) were plasma Vitamin C, urinary excretion of lead and ALP (only in panel beaters). Positive correlation was observed between blood lead levels and ACP, GOT and GPT while negative correlation was observed between blood lead levels and urinary excretion of lead and ALP. The correlation was however statistically insignificant. It was however observed that before and after Vitamin C supplementation, blood pressure, urine pH and specific gravity were not significantly affected. These results indicated that exposure to leaded products affects mainly biochemical parameters and that they may be ameliorated by a daily dose of Vitamin C, especially when the artisans can not be removed from their sources of lead exposure.

Keywords: Occupationally exposed artisans, leaded products, Vitamin C supplementation, Nigeria.