

Summary

Heavy metals have non-biodegradable properties and have hazardous impacts on various organisms, including plants, animals, and humans. Consequently, they have come to be a major problem for the environment in recent years. The current study was conducted in Nasiriyah city, the center of Thi-Qar province, from November 2022 to April 2023 on a randomly chosen from traffic police, hawkers, and compared them with the control group. The total number of volunteers was 120 males aged between 26-46 years. The subjects were divided into three groups, each group consisting of 40 volunteer. This study aimed to measure some heavy elements such as lead (Pb), cadmium (Cd), copper (Cu), and zinc (Zn). It was measured by using a flame atomic absorption spectrophotometer (FAAS). Some biochemical parameters such as lipid peroxidation marker malondialdehyde (MDA) determined by using the thio bar bituric acid method, alkaline phosphatase (ALP) evaluated by (FUJI DRI-CHEM NX500), and vitamin-D3 was conducted by (CL-900i / Mindray). In addition to investigate of hematological parameters by fully automated (Mindray) such as hemoglobin (Hb), red blood cells (RBCs), white blood cells (WBCs), hematocrit (HCT), mean corpuscular volume (MCV), and mean corpuscular hemoglobin (MCH). The data of this study were analysis statistically by using SPSS version 26 at p. value ≤ 0.05

The results of this study showed increase in the levels of (Pb, Cd, and Cu) in the study groups compared with the control group. Whilst, the level of Zn was record decrease in the traffic police and hawkers groups compared to the control group. According to age groups and duration of work, this study showed significant differences in concentration of Pb between the second and third age groups only in the traffic police group. While Cd showed significant increase in the hawkers group in the first and the second age groups compared with the third group. Pb recorded a significant increase in smokers in the hawkers group compared with the traffic police group. Moreover, this study shows a significant increase in the level of Zn in smokers and non-smokers groups for hawkers group than matching groups of traffic police. Concerning the biochemical parameters, these results show significant decrease in the levels of vitamin-D3 in the traffic police and hawkers groups compared with the control group. On the other hand, this study did not record any significant differences between levels of malondialdehyde (MDA) and Alkaline phosphatase (ALP) in the blood serum. According to age groups and work duration, this study showed a significant difference in the level of alkaline phosphatase between first and second age groups of the traffic police group. In contrast, the other parameters did not record a significant difference according to age groups. MDA recorded a significant increase depending on work duration between the first compared with the second group in the traffic police group. Moreover, there was a significant increase in levels of hemoglobin in the traffic police group compared to the hawkers and control groups. Red blood cells (RBCs) also showed significant increase in the traffic police and hawkers groups compared with the control group. At the same time, the mean corpuscular volume (MCV) decreased in the traffic police and hawkers groups compared with control group. In addition, the other hematological parameters did not record any significant difference

In a similar manner, this study did not record any differences according to age groups, while, depending on work duration, the levels of (Hb) recorded a significant increase in the first

group than the third group in the hawkers group. Furthermore, RBCs showed significant increase in the third compared with the first work group of traffic police. MCV recorded significant increase in the first and second work groups compared with the third work group of hawkers. In addition, MCH recorded a significant difference in the same age groups compared with the third group. Also, in the traffic police group, Hb recorded a significant increase in the first than the third work group and WBC recorded a significant increase in smokers than non-smokers for hawkers group. Also, the Hb and MCH recorded a significant increase in the non-smokers group of the traffic police than matching hawkers group. While, the count of RBCs showed a significant increase in smokers than non-smokers of the traffic police group. In addition, HCT recorded a significant increase in smokers than non-smokers for both study groups. In contrast, MCH showed significant increase in non-smokers than smokers for traffic police group. Finally, we can conclude that exposure to heavy elements for long periods of time and different concentrations affects the functions of the body organs and causes health problems for the people exposed.