

STUDY OF SOME BLOOD VARIABLES OF WORKERS IN THE CEMENT FACTORY IN ANBAR

Ahmed S. Farhan¹, Amjed Shiti Attallah², Ali M. Samen³

^{1,3}Department of biology, collage of sciences, University of Anbar, Iraq.

²Internalist F.I.B.M.S, Ramadi Teaching Hospital, Iraq.

e-mail: drmajeebaldulimirartnas@gmail.com

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ABSTRACT : This study was conducted to investigate some hematological changes in men of exposing cement dust. This study was done on twenty-two cement workers and twenty-two healthy men as control from Ramadi city in Anbar province west of Iraq to investigate some hematological variations (PCV, Hb, ESR, RBC, WBC, MCV, MCH and MCHC) in cement workers blood. The results of this scanning showed that: significant increment occurs in PCV, Hb, RBC, MCHC, while significant decrement occurs in MCH and MCV in workers. no valuable differences were observed in WBCs and ESR levels between workers and healthy men.

Key words : blood variable, cement workers.

INTRODUCTION

Most studies about cement dust exposure effects in humans have tended to focus on the effect of cement dust in the big cement production factory. (Saunders *et al.*, 2018; Wang *et al.*, 2020; Bandouchova *et al.*, 2020). But this study was done on some workers in a small factory of cement field products when the workers have exposure daily and deal with cement and its dust (Pang *et al.*, 2019; Li *et al.*, 2020; Rafael *et al.*, 2020) The human hemopoietic system knows to be highly sensitive to environmental effects due to quick synthesis and destruction of cells with consequent heavy metabolic demands, which make it the best indicator in toxicological researchs. (Bao, 2019; Ma and Xuan, 2020) Roughly all industrial sectors create toxic materials considering health hazards. Cement is an adhesive mineral dust that composes of a lot of ingredients like, calcium oxide, aluminum trioxide, magnesium oxide, ferric oxide sand silicon oxide and clay. (Yazar, 2019) Rise concentration and elongated inhalation of cement dust can induce clinical symptoms and inflammation that may generate in functional, structural changes (Chen *et al.*, 2019). Many dissertations have demonstrated relations between the dust of cement exposure and the respiratory system in the human body (Kahase, 2020). Cement dust irritates the integumentary and respiratory systems as well as the eye mucosa (Alqaisi *et al.*, 2019). People who get cement dust exposure daily may result to increase liver disorders, pulmonary abnormalities and carcinogenesis. reduced antioxidant ability and increased serum lipid peroxidation have been showing as possible occasional

mechanisms of disease.(Bayraktar *et al.*, 2020).

MATERIALS AND METHODS

Twenty-two exposed workers recruited into this study selected randomly from cement located in Al-Ramadi-Anbar. They had been exposed to cement dust for 7.5 ± 1 years (Mean \pm SEM). Twenty-two unexposed men (healthy) used as control. Blood pulled from a vein and was put in EDTA tubes for hematological investigation. Careful history was obtained and proper clinical examination was done. The Hb, PCV, ESR, WBC RBC, MCV, MCH and MCHC estimated by conventional methods. Results are expressed as mean \pm SEM. Statistical analysis was carried out using the unpaired student t-test. $P < 0.05$ was taken as statistically significant.

RESULTS AND DISCUSSION

The major finding in this study is that chronic occupational exposure to cement dust for 7.5 ± 1 years may have a deleterious effect on the hematologic index. Thus hematological function tests may be useful new parameters in assessing and monitoring the health of cement workers in addition to the traditional lung function tests. The results of the experiment on the PCV, Hb and RBC were showed in Figs. 1, 2 and 3. The PCV, Hb and RBC were increased significantly in exposed workers. The mean of PCV in control was 43.9% and in exposed workers was 49%. The mean of Hb in control was 14 g/dl and in exposed workers was 15.735g/dl. The mean of RBC in control was 5520000 cells/mm³ and in exposed workers was 6845000 cells/mm³. The increased