

**Determination of Blood Lead Levels in Adult Bahraini Citizens Prior to the Introduction of Unleaded Gasoline and the Possible Effect of Elevated Blood Lead Levels on the Serum Immunoglobulin IgG**

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**Objective:** This study is designed to investigate the possible effect of environmental lead exposure on the immune system.

**Design:** Prospective study.

**Setting:** University of Bahrain, College of Science, Department of Biology, Isa Town Campus.

**Method:** The concentration of lead (Pb) and the serum immunoglobulin IgG were measured in the blood of 40 human adults by atomic absorption spectrophotometry and ELISA assay in April 2000, soon before the implementation of unleaded gasoline (July, 2000) in the Kingdom of Bahrain.

**Result:** The blood lead levels of participants were found to be elevated (mean  $15.3 \pm 5.7$   $\mu\text{g}/\text{dl}$ ), in comparison with the standard international levels, in which blood lead levels of  $>10$   $\mu\text{g}/\text{dl}$  are designated as lead poisoning. On the other hand, the serum immunoglobulin IgG was within the normal range (mean  $1007.1 \pm 147.1$   $\text{mg}/\text{dl}$ ). However, no correlation was found between the blood lead levels and the serum IgG levels ( $p = 0.14$ ).

**Conclusion:** This study has shown that blood lead levels in 29 (72.5%) of the participations were higher than the internationally accepted level. The study also suggests that elevated blood lead levels did not have an effect on the efficiency of the humoral immunity represented by serum IgG.

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