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Use of Haematological and Immunological Biomarker as Indicator of Pb Intoxication

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Abstract

Transportation and industrial activities give high contribution to Pb exposure. The level of Pb in the air increases to 1.6-42 µg/m³ (WHO standard 0.001µg/m³) and in water reaches 120 µg/dl (WHO < 60 µg/dl). There are some researchers who examined the impact of Pb to health, but the results had insignificant impact. The objective of the study was to reveal the impact of Pb exposure to haematological and immunological system. The research was done by the metaanalysis method from similar researches. This article metaanalyses the research that used haematological and immunological system variables to Pb exposed objects. Variables in the haematological system which can be used as biomarker are the increase young reticulocyte, basophilic stippling, howel jolly bodies (normally not occurred), thrombocytosis, and blood zinc protophorphyrin > 1.3 µmol/l. Biomarker variable in the immunological system was the change of Th1/Th2 balance, in which Th1 showed an increase. In conclusion, haematological and immunological biomarker can be used as the indicator of Pb exposure. Further research is suggested in order to reveal the more specific and sensitive variables.

Keyword : Plumbum, (Pb), exposure, haematologic, indicator, immunologic, indicator