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P26. GENE POLYMORPHISMS INFLUENCING RESPONSE TO LEAD EXPOSURE

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Lead is an element that has been used by mankind for 6000 years due to its specifications like softness, high malleability, ductility, low melting temperature and corrosion resistance. Lead is the second most dangerous element coming after arsenic and its toxic effects on human are due to causing dysfunction of various organs such as kidney, bones, hematogenesis, cardiovascular system, nervous system.

Several studies have shown that genetic factors can influence toxicity in lead exposed individuals. Aminolevulinic acid receptor (ALAD), hemochromatosis gene (HFE), vitamin D receptor (VDR), glutathione S transferases (GST), metallothioneins (MT), XRCC3-241C/T genes are candidate genes for regulation of lead toxicity. Individuals with GSTM1, GSTT1 and GSTP1-Val105 of GST genes have been shown to be more sensitive to lead exposure. Low blood lead levels were detected in individuals with ALAD2 allele of ALAD G177C polymorphism (rs1800435), H63D and C282Y wild types of the HFE gene, the VDR BSM1 allele b, MT1 1245 A/G (rs8052394) polymorphism of MT gene. In contrast, higher mean blood lead levels were determined for individuals with GG genotype in MT2A 5A/G (rs28366003) and with T allele in the XRCC3-241 C/T polymorphisms.

In our country, identification of existing of environmental risks and determining genetic predispositions represent its importance in terms of public health in order to reduce toxicity resulting from lead exposure. Multidisciplinary studies conducted on this topic will provide very important data for government agencies and scientists