Assessment of serum malondialdehyde in foundry workers occupationally exposed to polycyclic aromatic hydrocarbons

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Context: Occupational exposure to carcinogenic substances and metals has been reported in foundries. A higher risk for DNA damage or oxidative damage lesions was also found in occupationally PAH-exposed groups. Smoking contains many carcinogenic and mutagenic chemicals which induce the generation of free radicals and reactive oxygen species (ROS) with increased level of lipid peroxidation. Malondialdehyde (MDA) is a major lipid peroxidation product that is mutagenic and tumorigenic.

Aim: To investigate the relationship between serum levels of malondialdehyde (MDA), a routinely used marker of oxidative stress and the PAH exposure.

Methods: Serum malondialdehyde (MDA) levels in 45 foundry sand moulding workers and 25 age matched controls were analyzed. MDA level was determined by thiobarbituric acid (TBA) reactive substances (TBARS) in serum.

Results and Conclusion: Serum MDA levels in sand moulding foundry workers were significantly higher than those in controls (P < 0.05). There was a significant association between increased MDA levels and PAH exposure level. The results of this study provide further evidence that the relationship between serum MDA and the oxidative stress in occupational exposure to PAH.

Keywords: Occupational exposure: PAH: Foundry sand moulding, Malondialdehyde

Biography

Saranya R. S. received her master's in Biotechnology from Bharathiar University, Coimbatore with first class in 2011. Currently, she is pursuing Ph.D. in Karpagam University. And her research is in the areas of occupational and environmental toxicology and genotoxicity in foundry workers. She published paper in her thrust area and presented many papers in International Conferences.

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