

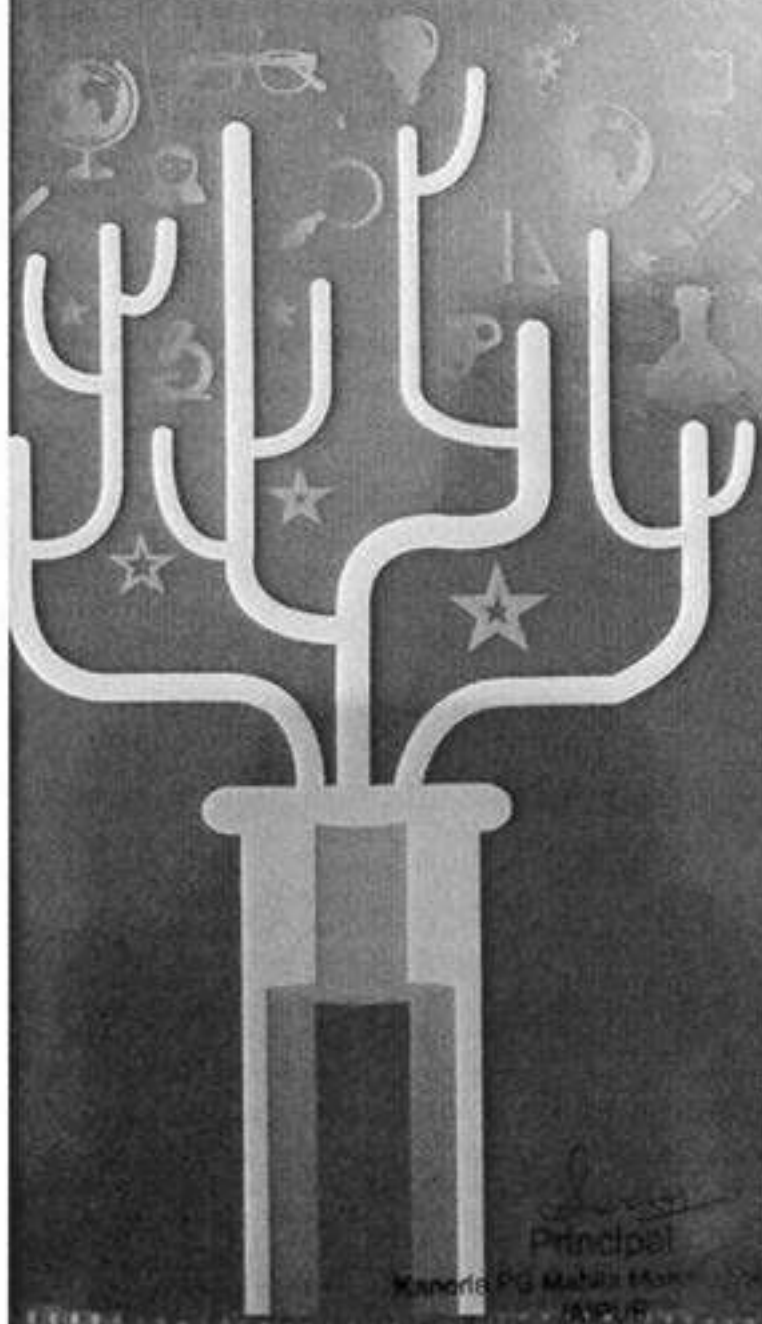
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The core message of the Hindu Spiritual and Service Fair is founded on the confluence and inseparability of nation, divinity and Hindu value system. It means that our nation cannot exist without our divinity and our divinity cannot exist without our nation and neither exist without Hindu value system. The six themes of IMCT are integrated into the value system practiced in the ancient land of India and are exemplified by the divinity.

Seema
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Lead Exposure and Toxicity

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ABSTRACT :

Lead poisoning has been recognized as a major public health risk, particularly in developing countries. Though various occupational and public health measures have been undertaken in order to control lead exposure, cases of lead poisoning are still reported. Exposure to lead produces various deleterious effects on the hematopoietic, renal, reproductive and central nervous system, mainly through increased oxidative stress. These alterations play a prominent role in disease manifestations. Modulation of cellular thiols for protection against reactive oxygen species (ROS) has been used as a therapeutic strategy against lead poisoning. N-acetylcysteine, α -lipoic acid, vitamin E, quercetin and a few herbal extracts show prophylaxis against the majority of lead mediated injury in both in vitro and in vivo studies. This review provides a comprehensive account of recent updates describing Health Effects of Lead Exposure, Lead Poisoning, Mechanism of Lead Toxicity, Laboratory Test for Lead.

Key Words: Lead Toxicity, BBB, Hemolytic Anemia and Frank Anemia.

Introduction :

Lead (Pb) is ubiquitous and one of the earliest metals discovered by the human race. Unique properties of lead, like softness, high malleability, ductility, low melting point and resistance to corrosion, have resulted in its widespread usage in different industries like automobiles, paint, ceramics, plastics, etc. This in turn has led to a manifold rise in the occurrence of free lead in biological systems and the inert environment. Lead is regarded as a potent occupational toxin and its toxicological manifestations are well known. The non biodegradable nature of lead is the prime reason for its prolonged persistence in the environment. Human exposure to lead occurs through various sources like leaded gasoline, industrial processes such as lead smelting and coal combustion, lead-based paints, lead containing pipes or lead-based solder in water supply systems, battery recycling, grids and bearings, etc. Although lead toxicity is a highly explored and comprehensively published topic, complete control and prevention over lead exposure is still far from being achieved. There is no such level of lead that appears to be necessary or beneficial to the body and no "safe" level of exposure to lead has been found. Lead toxicity is a particularly insidious hazard with

the potential of causing irreversible health effects. It is known to interfere with a number of body functions and it is primarily affecting the central nervous hematopoietic, hepatic and renal system producing serious disorders (1). Acute toxicity is related to occupational exposure and is quite uncommon. Chronic toxicity on the other hand is much more common and occurs at blood lead levels of about 40-60 $\mu\text{g/dL}$. It can be much more severe if not treated in time and is characterized by persistent vomiting, encephalopathy, lethargy, delirium, convulsions and coma (2).

Effect on the Nervous System :

Compared to other organ systems, the nerve system appears to be the most sensitive and chief target for lead induced toxicity (3). Both the central nervous system and the peripheral nervous system become affected on lead exposure. The effects on the peripheral nervous system are more pronounced in adults while the central nervous system is more prominently affected in children (4,5). Encephalopathy (a progressive degeneration of certain parts of the brain) is a direct consequence of lead exposure and the major symptoms include dullness, irritability, poor attention span, headache, muscular tremor, loss of memory and hallucinations.

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