

P49. LEAD: ITS EFFECT ON FETUS AND INFANTS

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Lead, the 5th most abundant metal in the earth's crust, is a naturally occurring, ubiquitous atmospheric pollutant. Humans can be exposed to lead through food, contaminated air and dust, and it accumulates particularly in the bones with a half-life of around 30 years. Lead has adverse effects to mainly renal, hematopoietic and neurologic systems and the most susceptible populations to the adverse neurodevelopmental effects of lead are children, particularly infants in the neonatal period and fetus as neurodevelopment begins in this period and the blood-brain barrier is still immature. Moreover, exposure levels that do not harm the mother can be fetotoxic because of the differences between the many biochemical pathways of the adult and the fetus. Lower IQ, reduced frustration tolerance, attention deficit, hyperactivity and weak reaction control are possible neurodevelopmental consequences of lead exposure. Fetal exposure to lead begins at the 21st week of pregnancy and continues throughout the life. This may lead to chronic diseases either immediately or later in life. Thus, pregnancy and the first 2 years of life are exceptionally important intervals with respect to adequate maternal and child nutrition. Although the placenta, an interface between the developing fetus and the mother, has mechanisms that restrict the entry of toxicants, it cannot protect the fetus from exposure to lead from mother's blood. Lead exposure during pregnancy has been shown to increase the risk for abortions, premature births and prenatal deaths. Developmental delay has also been found in infants with evidence of high lead levels in maternal and fetal blood.