Editorial

Control of Lead Poisoning in Pakistan

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Lead ranks as one of the most serious environmental threats to human health, especially in developing countries. Young children especially with iron deficiency anemia are more susceptible since their digestive systems absorb heavy metals rapidly and they may ingest lead-contaminated soil by putting their fingers in their mouths. The most devastating effect of lead poisoning in growing children is on the mental development. Children in developing countries are more at risk due to high prevalence of anemia and malnutrition, which intensifies lead absorption. High blood lead levels in adults can cause high blood pressure, damage the kidneys, the nervous system and reproductive system.[1]

In 1991, the Centers for Disease Control and Prevention (CDC) redefined elevated blood lead levels (BLLs) from ≥25 µg/dL to ≥10 µg/dL and recommended a new set of guidelines for the treatment of lead levels ≥15 µg/dL.[2] In 2000 the World Health Organization estimated that 120 million people had blood lead levels of 5-10 µg/dl and about the same number had levels above 10 µg/dl. Data for the children in this study showed that 40% had blood lead levels above 5 µg/dl, and 20% above 10 µg/dl. Less than 10% of the children had levels above 20 µg/dl, but 99% of them lived in developing regions.[3]

In some African countries lead has not yet been banned from petrol.[4] The number of cars and industries using lead in large cities is increasing. Also, lead has not been banned from paint or plumbing fixtures. Most of the water supply lines in cities like Karachi and Lahore are quite old and may be an important source of contamination of lead in our water.

A study by Aga Khan University in Karachi showed that 80% of children aged 36 to 60 months had blood lead concentrations 10 µg/dl and that living near the city centre, application of surma and child's habit of hand-to-mouth activity were associated with elevated lead concentrations in blood.[5] A survey for lead poisoning in lead factory workers in Pakistan showed median blood lead levels of 61.20 micrograms/dl.[6]

In this issue of JPMA, Agha et al present their study on blood lead levels in traffic policemen in Islamabad which shows that these policemen have markedly elevated blood lead levels.[7] In another study on policemen from Karachi, which has a greater concentration of public and private transport vehicles, the mean blood lead levels were higher than the study in Islamabad.[8]

The major environmental sources of lead exposure include, air, dust, soil, drinking water and food contaminated with lead.[9] Occupations that impose greater risk for lead poisoning include welding, iron foundry workers, glaze workers, ship breaking, plumbing, traffic police, repair of automobile radiators, paint industry, lead smelting and refining, pottery and ceramic ware production and many others.

In most developed countries, better measures of identification, monitoring and improvements in industrial methods have reduced occupational lead exposure. The situation in developing countries is quite alarming due to little concern about environmental issues such as lead poisoning. There is a need for the government to implement programs for the control of exposure to lead poisoning in Pakistan. There are a number of effective strategies that are recommended by the World Health Organization, Center for Disease Control (CDC) and Environmental Protection Agency (USA). These include increasing public awareness about sources and consequences of lead poisoning, identification of sources of lead in the environment and at workplaces. The recommendations for removing lead include eliminating lead additives in fuels and paints, banning lead use in food containers and controlling lead use in traditional medicine and cosmetics. There is also a need to minimize lead use in plumbing and water distribution systems.

There is also need for the monitoring of high risk groups that include children aged less than six years, workers in industries with exposure to lead as well as occupational exposure such as in traffic policemen and automobile workers. There is need for nutritional support programs including iron and calcium supplementation, a reduced-fat diet, and frequent meals in children.

The most important aspect is for the government and the public to realize that exposure to lead is an important public health problem that has consequences on the development and well-being of the individuals as well as the economy. The government needs to implement the necessary legislative measures with support from the non-governmental organizations and health professionals in the country.

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