Preventing Neonatal Pollution: Protecting the Health of the Next Generation

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Pollution in Newborns

In our modern industrial society, the public is increasingly exposed to a wide range of chemicals in food, air, water, and consumer products. There is a growing recognition that low levels of pollutants, previously thought to cause only minor harm, may pose serious risks to human health. In addition to direct exposure, pollution can also impact health through the consumption of contaminated food or through environmental contaminants in pregnant women, new-born infants, and children. This section will present some information on environmental contaminants in pregnant women, new-born infants, and children.

Examples of Chemicals Found in Infant Cord Blood

- PFOS - Perfluorooctanoic acid (aka, "Teflon chemicals")
- PFOA - Perfluorooctanoic acid
- PFOSA - Perfluorooctane sulfonate
- Brominated flame retardants
  - PBB - Polybrominated diphenyl ethers
  - PBDE - Polybrominated dibenzofuranes, -biphenyls
- Additional to plastics, medical devices, cosmetics, personal care products
  - BPA - Bisphenol A
  - Phthalates
  - DEHP - di-2-ethylhexyl phthalate
  - DOP - dioctyl phthalate
  - DEP - diethyl phthalate
- Polycyclic aromatic hydrocarbons
- PCBs - Polychlorinated biphenyls
- Dioxins
- Pesticide residues

Prenatal exposures and later disease

Exposures in the womb to a variety of toxic substances have been linked to a wide range of neurological and behavioral effects in infants and children. These effects can include problems with attention, memory, and learning, as well as motor development and behavioral disorders. The main contaminants associated with these effects include lead, mercury, and pesticides.

Developmental Origins of Health and Disease

Recent research has shown that the development of health and disease begins in utero and continues into adulthood. Environmental exposures during pregnancy can have long-term effects on physical and mental health. For example, exposures to certain chemicals, such as lead and mercury, can cause neurological damage and developmental delays in children. Additionally, exposures to environmental toxins can affect the immune system and increase the risk of allergic reactions and asthma.

Impaired Neurodevelopment & Behavior

Low birth weight

- SIDS, CF, RDS, DPT, Preemies, air pollution

Preterm birth

- SIDS, CF, RDS, DPT, Preemies, air pollution, preterm labor

Birth defects

- Air pollution, pesticides, DEG, AGP

Screening for Exposures

Environmental health screening tools designed for the perinatal and prenatal care are available to assess health in the perinatal period for children at risk for developmental delays. The screening can identify babies who may be at risk for developmental delays and can help healthcare providers develop interventions to improve outcomes.

Counseling Clients

Nutrition counseling and individualized dietary advice are important components of a comprehensive prenatal care plan. The nutritional counseling can help ensure that the woman’s diet provides the necessary nutrients for a healthy pregnancy and can reduce the risk of complications. In addition, counseling can help girls and women understand the importance of a healthy lifestyle and the role it plays in preventing childhood obesity.

Training Clinicians

Environmental health education is critical for the development of knowledge and skills among healthcare professionals. Training programs for clinicians can help them understand the importance of environmental health and the role it plays in improving outcomes for patients. These programs can also help clinicians develop skills for identifying and managing environmental health hazards and for referring patients to appropriate resources.

References

Available online at http://www.brightbaby.org or by email request.