Clinical Management of Lead Exposure

In Pregnant and Breastfeeding Women

Important Facts

- There is no safe blood lead level (BLL).
- Lead crosses the placenta and passes through breastmilk.
- All pregnant women should be screened for risk factors of lead exposure.
- Pregnant women with risk factors should have a blood lead level testing performed.

Risk Factors for Lead Exposure

- Immigration and refugee status
- Living near a contamination source
- Occupational & recreational exposures in welding, auto mechanics, battery manufacturing, art, construction, gun handling (or ammunition), and others
- Use of lead-glazed ceramic pottery
- Pica – eating nonfood substances such as ceramic pieces or dirt
- Folk remedies or alternative therapies (such as azarcon, kohl, kajal, surma, and many others)
- Imported products such as cosmetics, candies, and spices
- Renovating/remodeling pre-1978 homes
- Any contact with old paint and paint-dust
- Contaminated drinking water, from lead service lines, solder or other sources; may include well-water
- Poor diet, cigarette, and alcohol use
- History of previous lead exposure
- House member with an elevated lead level

Blood lead level (BLL) during pregnancy	Follow up blood lead level testing	Further Recommendations
< 3.5 mcg/dL	None recommended	▪ Provide anticipatory guidance: eliminate and avoid exposures. ▪ Optimize nutrition with calcium, iron, zinc, Vitamins C, D, and E.
≥ 3.5-14 mcg/dL	Repeat venous testing within 1 month	ALL ABOVE RECOMMENDATIONS AND: ▪ Identify and eliminate ongoing exposures. ▪ Obtain maternal BLL or cord BLL at delivery. ▪ Inform infant's heath care provider of exposure to coordinate care and follow up testing. ▪ Consider Environmental or Occupational Health Specialist consult ▪ Prescribe dietary intake of Ca+ 2000mg/day. ▪ Evaluate and treat anemia and any other nutritional deficiencies. ▪ Refer to nutrition assistance programs (i.e. SNAP/WIC) if needed.

Blood lead level (BLL) during pregnancy	Follow up blood lead level testing	Further Recommendations
≥ 15-44 mcg/dL	Repeat venous testing within 1-4 weeks, then 2-3 months. **BLL<25 mcg/dL repeat monthly	ALL OF ABOVE RECOMMENDATIONS AND: ▪ Encourage environmental risk assessment by health department with case management.
≥45 mcg/dL	Repeat venous BLL within 24 hours and in frequent intervals as advised	ALL OF ABOVE RECOMMENDATIONS AND: ▪ Treat as high-risk pregnancy and consult with an expert in lead poisoning and chelation. (chelation warranted in cases of life-threatening lead encephalopathy regardless of BLL). ▪ Refer to a maternal fetal medicine specialist.

Source: CDC Recommendations for maternal Blood Lead Testing During Lactation

Medical Management of Elevated BLL during Lactation

- **The benefits of breastfeeding continue to outweigh the risks from potential exposure based on the current state of evidence.**
- Encourage the continuation of breastfeeding without interruption unless ALL the following are true:
  - Infant's BLL is ≥5 mcg/dL.
  - Maternal BLL is ≥20 mcg/dL and the infant's BLL is rising or fails to decline by 5 mcg/dL.
  - A comprehensive evaluation of the infant's diet and environment fails to identify any potential lead exposure sources other than breastmilk.
- Consider consulting a lead poisoning expert prior to making recommendations to interrupt breastfeeding based on maternal BLL (toxicologist, occupational environmental medicine specialist, MAPEHSU).
- Because decisions on when to do follow up for maternal blood testing is impacted by the infant's BLL results, **coordination of care between healthcare providers for both mother and infant is invaluable in the postpartum period.**

Mother's venous BLL at time of delivery	Maternal Blood Lead Follow-up Testing During Lactation to Assess Risk for Infant Lead Exposure
≥ 5-9 mcg/dL	Venous test every 3 months, per guidelines, unless infant BLLs are rising or fail to decline.
≥ 20-39 mcg/dL	Venous test 2 weeks postpartum and then at 1–3-month intervals depending on direction and magnitude of trend in infant BLLs.
≥ 40 mcg/dL	Venous test within 24 hours postpartum and the at frequent intervals depending on clinical interventions and trend in BLLs. Consultation with a clinician experienced in management of lead poisoning is advised.

Source: CDC Recommendations for maternal Blood Lead Testing During Lactation

References

- Breastfeeding- Lead. (2019, December 22). Centers for Disease Control and Prevention. https://www.cdc.gov/breastfeeding/breastfeeding-special-circumstances/environmental-exposures/lead.html
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- Lead Screening During Pregnancy and Lactation. (2012, August). The American College of Obstetricians and Gynecologists. https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2012/08/lead-screening-during-pregnancy-and-lactation?utm_source=redirect&utm_medium=web&utm_campaign=otn

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