

NIH Annual Intramural Research Report

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Report Title

Toxicity Of Lead In Children--Clinical Trial

2014 Fiscal Year

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EB: Pediatric Epidemiology Group

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There were 4 External Collaborators

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Keywords

succimer, DMSA, dimercaptosuccinic acid, chelation, FDA phase III-IV, blood pressure, chelating agents, child behavior disorders, child development, child development disorders, child nutrition, children, clinical trials, controlled clinical trials, drug evaluation, growth, lead poisoning, cadmium

Goals and Objectives

This study was originally designed to test whether succimer, an oral chelating agent, could prevent lead-associated cognitive defects in toddlers. It does not. Using these data, we have explored other aspects of lead poisoning, reported in previous years. We have recently analyzed blood samples from the trial for mercury and cadmium. We have shown previously that succimer does not chelate methyl mercury, and this year showed that it does not chelate cadmium.

Summary

We did a clinical trial of succimer to treat moderately lead poisoned children. We found no effect of succimer treatment on cognition or behavior, reported previously. Recently, we have arranged with CDC to analyze blood samples collected in this project for methyl mercury, inorganic mercury, and cadmium, which allowed a randomized trial of succimer for chelation of these compounds without enrolling any new subjects or collecting any specimens. Succimer does not appear to be an efficacious chelating agent for mercury or cadmium.

Publications Generated during the 2014 Reporting Period

Ordered by publication type and then author name.

1. Liu J, Liu X, Wang W, McCauley L, Pinto-Martin J, Wang Y, Li L, Yan C, Rogan WJ (2014). Blood lead concentrations and children's behavioral and emotional problems: a cohort study. JAMA Pediatr 168, 737-45. <https://doi.org/10.1001/jamapediatrics.2014.332>

PubMed ID 25090293 Pubmed Central ID 4152857

2. Wang Y, Chen A, Dietrich KN, Radcliffe J, Caldwell KL, Rogan WJ (2014). Postnatal exposure to methyl mercury and neuropsychological development in 7-year-old urban inner-city children exposed to lead in the United States. Child Neuropsychol 20, 527-38. <https://doi.org/10.1080/09297049.2013.824955>

PubMed ID 23971942 Pubmed Central ID 3867532

3. Wang Y, Rogan WJ, Chen HY, Chen PC, Su PH, Chen HY, Wang SL (2015). Prenatal exposure to perfluroalkyl substances and children's IQ: The Taiwan maternal and infant cohort study. *Int J Hyg Environ Health* 218, 639-44. <https://doi.org/10.1016/j.ijheh.2015.07.002>

PubMed ID 26205657 Pubmed Central ID 5435232