



Maternal Iodine Supplementation: Clinical Trials and Assessment of Outcomes

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PRESENTATION ABSTRACT

Effect of Iodine Supplementation in Pregnancy on Child Development: A Systematic Review

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Abstract

Background: The governments of Australia and New Zealand mandated iodine fortification of bread flour in 2009 to address reports of low iodine status of the population. Because pregnant women have increased iodine requirements, a number of national and international authorities recommend additional prenatal iodine supplementation. We evaluated the efficacy and safety of iodine supplementation during pregnancy or the periconceptional period (PP) using a systematic review (Zhou et al., *AJCN* 2013;98:1241-54).

Method: Randomized controlled trials (RCTs) of iodine supplementation during pregnancy or the PP that reported growth or development of children, pregnancy outcomes, iodine status, or thyroid function were included, although the primary outcome of the review was childhood development and growth.

Results: Eight trials met the inclusion criteria. Only two trials from regions of severe deficiency reported clinical data and growth and development of children. These trials showed that iodine supplementation reduced the risk of cretinism, but there was no improvement in childhood intelligence, gross development, growth, or pregnancy outcomes based on intention to treat. None of the RCTs from regions of mild-to-moderate iodine deficiency reported clinical outcomes or childhood development, although one ongoing trial with participants from India and Thailand was identified (NCT00791466, ClinicalTrials.gov). Effects of iodine supplementation on the thyroid function of mothers and their children were inconsistent. No RCTs from regions of iodine sufficiency were identified. Since the publication of Zhou et al. (*AJCN* 2013;98:1241-54), we have completed a small randomized trial of iodine supplementation (150ug/d vs. placebo) during pregnancy in Adelaide, Australia, which is a region of mild iodine deficiency. The cognitive, language, or motor development scores assessed using the Bayley III did not differ between groups at 18 months of age.

Conclusions: There is a lack of evidence to draw firm conclusions regarding the effect of routine iodine supplementation during pregnancy on outcomes of childhood development and growth. There remains a need to determine the efficacy and safety of routine iodine supplementation in pregnant women living in regions of mild-to-moderate iodine deficiency and in regions of iodine sufficiency.

References

1. Zhou SJ, Anderson MA, Gibson RA, Makrides M. Effect of iodine supplementation in pregnancy on child development and other clinical outcomes: A systematic review of randomized controlled trials. *AJCN* 2013;98:1241-54



National Institutes of Health
Office of Dietary Supplements