Maternal smoking cessation during pregnancy and infant growth trajectories: Associations and Mechanisms

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Introduction

Childhood obesity has gradually become a public health concern, and one of the most important risk factors researchers have identified is maternal smoking during pregnancy.

Study purposes:
- To examine the extent to which maternal smoking cessation affects infant growth;
- To explore the mechanisms through two potential mediators (infant appetite and sleep).

Conceptual Framework /Hypothesis

Measurement

- Exposure Variable: Maternal smoke abstinence was verified by urine cotinine and breath carbon monoxide levels at each visit.
- Outcome Variable: Infant weight, length, body mass index (BMI), and head circumference (HC) were measured each month from birth to 12 months.
- Mediators: Infant appetite was reported by the mothers using the Baby Eating Behavior Questionnaire (BEBQ), and Infant sleep by the Brief Infant Sleep Questionnaire (BISQ).

Results

Catch-up growth in BMI of a infant of non-quitter

Infants of non-quitters had catch-up growth illustrated by a rapid increase (higher slope) in BMI or weight z-score from birth to 12 months. This finding confirms our hypothesis.

Methods

Timeline (N=21)

Smoking Cessation
- Birth - 12 months
  - Education, feedback, peer support, and financial incentives
  - Track mother’s smoking status
  - Obtain infant measurements monthly
- 13-24 months
  - Quarterly visits

Smoking cessation and infant growth

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Timeline (N=21)

PRENATAL

POSTPARTUM

Smoking cessation and newborn measurements

Two mediators: Infant Appetite & Infant Sleep

Conclusion

Maternal smoking cessation:
- Is associated with higher birth weight and normalized weight/BMI gain.
- Did not significantly affect infant appetite at 3 months postpartum.
- Is associated with longer infant night-time sleep duration, but did not significantly affect day-time sleep duration.

Acknowledgements

- UB Honors College
- UB Department of Pediatrics
- NIH Clinical and Translation Science Award (CTSA) Faculty Mentor: Xiaozhong Wen, MD, PhD; Assistant Professor (716- 829-6811; xiaozhon@buffalo.edu)
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