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Motor And Cognitive Developmental Scores In Offspring Of Pregnant Smokers At 12 Months Of Age

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Keywords

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Abstract

Background

It is estimated that more than 50% of smokers who become pregnant will continue to smoke despite the Surgeon General's warning. In some studies, prenatal smoke exposure has been associated with decreased cognitive, motor, and behavioral function in the offspring.

Objective

We conducted the current analysis to determine whether the neurodevelopmental scores collected by domain on the Ages and Stages Questionnaire (ASQ) scores at 12 months of age differed between offspring of prospectively identified pregnant smokers versus nonsmokers.

Design/Methods

The validated ASQ-3 was obtained at 12 months of age for offspring delivered to pregnant smokers randomized to vitamin C versus placebo during pregnancy and offspring of pregnant nonsmokers also studied prospectively. Z-scores for each ASQ domain were calculated using the normative data obtained from the ASQ-3 user's guide. The raw scores and Z-scores per domain were compared between groups using the Wilcoxon signed rank test.

Results

ASQ results were obtained in 204 offspring of smokers and 32 of nonsmokers. The demographics of the two groups were: Smokers: 19% non-white, 87% government assisted or self-paid/none insurance status, 54% ≤ high school education, 8 cigarettes/day at randomization into the study at < 23 weeks of gestation. Nonsmokers: 6.3% non-white; 6.3% government insurance; 6.3 % ≤ high school education. The offspring of smokers had significantly lower scores in the problem solving (Z score of -0.04 in smokers versus 0.32 in

nonsmokers) and personal social (Z score of 0.04 in smokers versus 0.45 in nonsmokers) domains.

Conclusions

This data suggests a potential difference in problem solving and personal social domains in offspring of smokers versus nonsmokers. However, we are limited by our sample size to be able to adjust for other important covariates. Further study with longer follow-up and more detailed neurodevelopmental testing is needed.