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Vitamin C to pregnant smokers persistently improves infant airway function to 12 months of age: a randomised trial

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Vitamin C supplementation coupled with smoking cessation counselling for pregnant smokers may be a safe, inexpensive, and simple intervention to improve the airway function of their offspring through 12 months of age https://bit.ly/3fa8q2X

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ABSTRACT

Background: Vitamin C (500 mg·day^{-1}) supplementation for pregnant smokers has been reported to increase newborn pulmonary function and infant forced expiratory flows (FEFs) at 3 months of age. Its effect on airway function through 12 months of age has not been reported.

Objective: To assess whether vitamin C supplementation to pregnant smokers is associated with a sustained increased airway function in their infants through 12 months of age.

Methods: This is a pre-specified secondary outcome of a randomised, double-blind, placebo-controlled trial that randomised 251 pregnant smokers between 13 and 23 weeks of gestation: 125 to 500 mg·day^{-1} vitamin C and 126 to placebo. Smoking cessation counselling was provided. FEFs performed at 3 and 12 months of age were analysed by repeated-measures analysis of covariance.

Results: FEFs were performed in 222 infants at 3 months and 202 infants at 12 months of age. The infants allocated to vitamin C had significantly increased FEFs over the first year of life compared to those allocated to placebo. The overall increased flows were 40.2 mL·s^{-1} for at FEF_{75} (75% of forced vital capacity (FVC)) (adjusted 95% CI for difference 6.6–73.8; p=0.025); 58.3 mL·s^{-1} for FEF_{50} (10.9–105.8; p=0.0081); and 55.1 mL·s^{-1} for $FEF_{25–75}$ (9.7–100.5; p=0.013).

Conclusions: In offspring of pregnant smokers randomised to vitamin C *versus* placebo, vitamin C during pregnancy was associated with a small but significantly increased airway function at 3 and 12 months of age, suggesting a potential shift to a higher airway function trajectory curve. Continued follow-up is underway.