For pregnant smokers, vitamin C supplements improve lung function of newborn

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Supplemental vitamin C taken by pregnant smokers improved measures of lung function for newborns and decreased the incidence of wheezing for infants through 1 year, according to a study published by *JAMA*. The study is being released early online to coincide with its presentation at the American Thoracic Society International Conference.

More than 50 percent of smokers who become pregnant continue to smoke, corresponding to 12 percent of all pregnancies. Smoking during pregnancy adversely affects lung development, with lifelong decreases in pulmonary (lung) function. At birth, newborn infants born to smokers show decreased pulmonary function test (PFT) results, with respiratory changes leading to increased hospitalization for respiratory infections, and increased incidence of childhood asthma, according to background information on the article. In a study involving primates, vitamin C blocked some of the in-utero effects of nicotine on lung development and pulmonary function in offspring.

Cindy T. McEvoy, M.D., M.C.R., of Oregon Health & Science University, Portland, and colleagues randomly assigned pregnant smokers to receive vitamin C (500 mg/d) (n = 89) or placebo (n = 90). One hundred fifty-nine newborns of pregnant smokers (76 vitamin C treated and 83 placebo treated) and 76 newborns (reference group) of pregnant nonsmokers were studied with newborn PFTs (performed within 72 hours of age)

The researchers found that newborns of women randomized to vitamin C, compared with those randomized to placebo, had improved measures of pulmonary function. Offspring of women randomized to vitamin C had significantly decreased wheezing through age 1 year (15/70 [21 percent] vs 31/77 [40 percent]. There were no significant differences in the 1-year PFT results between the vitamin C and placebo groups.

"Although smoking cessation is the foremost goal, most pregnant smokers continue to smoke, supporting the need for a pharmacologic intervention," the authors write. Other studies have demonstrated that reduced pulmonary function in offspring of smokers continues into childhood and up to age 21 years. "This emphasizes the important opportunity of in-utero intervention. Individuals who begin life with decreased PFT measures may be at increased risk for chronic obstructive pulmonary disease."

"Vitamin C supplementation in pregnant smokers may be an inexpensive and simple approach (with continued smoking cessation counseling) to decrease some of the effects of smoking in pregnancy on newborn pulmonary function and ultimately infant respiratory morbidities, but further study is required," the researchers conclude.

"The findings from the study by McEvoy et al offer an approach for potentially minimizing the harmful effects of maternal smoking during pregnancy on the respiratory health of infants," writes Graham L. Hall, Ph.D., of the University of Western Australia, West Perth, Australia, in an accompanying editorial.

"However, achieving smoking cessation should be the primary goal for women who smoke and who intend to or become pregnant. By preventing her developing fetus and newborn infant from becoming exposed to tobacco smoke, a pregnant woman can do more for the respiratory health and overall health of her child than any amount of

vitamin C may be able to accomplish."

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