Vitamin C improves pulmonary function in newborns of pregnant smoking women

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Vitamin C supplementation in pregnant women who are unable to quit smoking significantly improves pulmonary function in their newborns, according to a new study.

"Smoking during pregnancy is known to adversely affect the lung development of the developing baby," said Cindy McEvoy, MD, associate professor of pediatrics at Oregon Health & Science University Doernbecher Children's Hospital. "We found that daily use of vitamin C (500 mg/day) by smoking pregnant woman significantly improved pulmonary function tests administered to their offspring at about 48 hours postpartum."

The results will be presented at the ATS 2012 International Conference in San Francisco.

The study enrolled the newborns of 159 smoking women and randomized them to daily vitamin C (500 mg) or placebo before 22 weeks gestation and treatment was continued through delivery.76 non smoking pregnant women were also studied. The primary outcome of the study was the measurement of the newborn's lung function with a pulmonary function test at about 48 hours of life. This assessment included measurement of peak tidal expiratory flow to expiratory time (TPTEF:TE) and respiratory compliance (Crs).

Smokers treated with placebo had significantly lower levels of ascorbic acid than non-smokers, but levels returned to those of non-smokers in

smokers randomized to vitamin C. [Newborns](#) of smoking women randomized to placebo had decreased TPTEF:TE and Crs compared to non-smokers. Both TPTEF:TE and Crs were significantly increased by vitamin C supplementation, returning them nearly to the levels seen in non-smokers.

"In our pilot study, we were able to show that babies born to smoking pregnant women who were randomized to daily supplemental vitamin C had significantly improved pulmonary/lung function tests compared to babies born to smoking women who were randomized to placebo," said Dr. McEvoy.

"Moreover, although our study numbers were small, we found that one particular genetic variant that has been shown to increase the risk of smokers developing cancer and is associated with both a reduced ability to [quit smoking](#) and a high likelihood of relapse, also seemed to intensify the harmful effects of maternal smoking on babies' lungs. Although the lung function of all babies born to smokers in our study was improved by supplemental vitamin C, our preliminary data suggest, importantly, that vitamin C may help those babies at the greatest risk of harm during their development from their mother's smoking in pregnancy."

"Getting women to quit smoking during pregnancy has to be priority one, but this study provides a way to potentially help the infants born to at least 12% of pregnant women who cannot quit smoking when pregnant." said Dr. McEvoy. "Vitamin C supplementation may block some of the in-utero effects of [smoking](#) on fetal lung development."

"Our findings are important because improved lung function tests at birth are associated with less wheezing and asthma in childhood," concluded Dr. McEvoy. "[Vitamin C](#) is a simple, safe, and inexpensive treatment that may decrease the impact of [smoking during pregnancy](#) on the respiratory health of children."

More information: "Daily Vitamin C Improves Pulmonary Function In Newborns Of Pregnant Smoking Women: A Randomized Trial" (Session C16, Tuesday, May 22, Room 2006-2008, Moscone Center; Abstract 25842)

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