

## **Breastfed babies breathe better, except when mom has asthma**

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When it comes to feeding babies, the old adage “breast is best” certainly holds true, with breastfed babies having less diarrhea and fewer ear infections and incidents of wheezing in early life. However, the positive effects of infant feeding on lung function may not hold true for children of asthmatic mothers.

“Longer breastfeeding in infancy is associated with improved lung function in later childhood, with minimal effects on airflow in children of non-asthmatic mothers,” wrote Theresa W. Guilbert, M.D., of the University of Wisconsin-Madison and the Arizona Respiratory Center at the University of Arizona in Tucson. “However, longer breastfeeding in children of mother with asthma demonstrates no improved lung growth and significant decrease in airflows later in life.”

The findings were reported in the first issue for November of the American Journal of Respiratory and Critical Care Medicine, published by the American Thoracic Society.

Dr. Guilbert, working with investigators from the Arizona Respiratory Center, analyzed data from the Children’s Respiratory Study in Tucson, Arizona, a prospective population based study of 1,246 infants who were enrolled at birth and monitored through adolescence. Of the original cohort, 679 participants who had performed lung function tests between the ages of 11 and 16, and disclosed complete data on infant-feeding practices were included in the analysis.

Each participant was evaluated for lung function using spirometry. The researchers measured lung volume [forced vital capacity (FVC)] and airflows [forced expiratory volume in one second (FEV1) and FEV1/FVC].

When analyzed as a whole, the group found that FEV1/FVC was lower in breastfed children. However, when the data was analyzed taking maternal allergy and asthma into account, the observed lower airflows associated with longer breastfeeding were only found in those infants with asthmatic or allergic mothers.

“Breast fed children with non-atopic and non-asthmatic mothers had an increase in lung volume and no decrease in their airflows,” wrote Dr. Guilbert. “However, children of mothers with asthma who were breastfed four months or more did not demonstrate any improvement in lung volume. Further, they had a significant reduction in airflows, suggesting that the risk for increased asthma in children of asthmatic mothers may be partly due to altered lung growth.”

Dr. Guilbert speculates that the breast milk of non-asthmatic mothers may contain certain factors that promote lung development, citing several possible candidates including cytokines, tumor necrosis factor, epithelial growth factor, and prostaglandin. One cytokine in particular, TGF- $\beta$ 1, is related to elastin production, which is important to normal structure and function of the lungs. The dose of TGF- $\beta$ 1 received by infants via breast milk has been shown to be inversely related to infant wheeze.

“These findings suggest that growth factors in milk have the potential to modify lung development, which might account for some of the protective effect of breastfeeding against wheeze,” wrote Dr. Guilbert.

The results of this study are supported by a recent mouse study which

found that mouse pups born to non-asthmatic mothers who were breast fed by asthmatic foster mothers developed increased airway hyperresponsiveness and airway inflammation.

Dr. Guilbert cautions that the clinical implications of these findings are not known. “Human milk is uniquely suited to the feeding of infants, having been subject to selective pressures for millennia,” she wrote. “It is premature to suggest any change in breastfeeding recommendations based on one study, particularly given the multiple well-documented benefits of breastfeeding.”

Source: American Thoracic Society

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