A practice gap in pediatric dermatology: Does breast-feeding prevent the development of infantile atopic dermatitis?

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In part because of a substantial increase in the number of cases of pediatric atopic dermatitis (AD) in the developing world during the last 3 decades,[1] there is an urgency to determine if any preventative measure can reduce the disease incidence. Common questions that dermatologists encounter from parents with a family history of severe atopy or from mothers breast-feeding infants with AD are whether or not dietary restriction, maternal antigen avoidance, or breast-feeding can reduce the risk of onset of AD.

After breast-feeding rates declined dramatically in the early 20th century, a movement to understand the health benefits of breast-feeding ensued that resulted in evidence-based recommendations for breast-feeding mothers.[2] There is strong evidence to support that breast-feeding during the first 4 months of life causes a reduction in the incidence and severity of atopic disease in patients at high risk.[3] However, the risk reduction from breast-feeding is modest, and is estimated to be at most 33%.[3-5] It is important to note that this risk reduction only applies to children at high risk,[4-6] defined as a child who has a first-degree relative with AD. Therefore, if the infant is not a child at high risk, breast-feeding has no effect on the incidence of AD.

There is also no difference in atopic risk reduction between infants exclusively breast-fed for 6 months, as the World Health Organization recommends, and those in whom breast-feeding is supplemented with solids or nonbreast-milk liquids such as formula.[4-6] Therefore, new mothers of children at high risk can be informed that breast-feeding for at least 4 months will modestly reduce their babies' risk of developing AD. Mothers may be reassured that they do not have to exclusively breast-feed to achieve the desired risk reduction, because supplementing with formula will not lessen the benefit to the baby. For those infants who require formula, there is some evidence suggesting that atopic disease can be delayed or prevented with hydrolyzed formulas instead of intact cow's milk.[4,5]

The second question is whether or not dietary changes and maternal antigen avoidance during pregnancy and while breast-feeding will minimize the baby's risk for developing AD.

A 2012 Cochrane Review looked at 5 trials involving 952 pregnant women whose children had a relatively high risk of developing atopic disease because of a strong family history. The foods that pregnant women were asked to avoid included cow's milk, eggs, peanuts, fish, and chocolate. The data from these trials did not suggest a protective effect of maternal dietary antigen avoidance during pregnancy on the incidence of AD during the first 18 months of life.[7] In addition, the results of 2 trials[8,9] suggest that maternal antigen avoidance may be associated with a higher, yet statistically unstable, risk of preterm birth (relative risk 10.06, 95% confidence interval 0.53 to 192.26) and a possible decrease in mean birth weight (relative risk 83.45, 95% confidence interval −221.87 to 54.97).[8-13] Thus, dietary modification during pregnancy should not be recommended as it may be detrimental to fetal growth and increase the risk of prematurity.

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It is also best to advise against an antigen avoidance diet for mothers at high risk during lactation because this is unlikely to reduce the risk of the child developing AD. Two trials failed to observe a significant protective effect of maternal antigen avoidance during lactation on the incidence of AD during the first 18 months of life.[12,14] Another crossover trial involving 17 lactating mothers found that less than half (46%) of the infants with established AD demonstrated improvement during the exclusion period.[7] The trial was small (n = 17) and compared exposure to cow's milk and egg with exposure to soy milk, which can be an allergen itself.[7,15] Larger trials are required to draw definitive conclusions. To date, dietary antigen avoidance by lactating mothers of infants with established AD has been associated with only a nonsignificant reduction in eczema severity.

In conclusion, it is not recommended to prescribe an antigen avoidance diet for a pregnant woman to reduce the risk of AD in her child. More data are necessary to determine the potential adverse effects of maternal antigen avoidance during pregnancy on gestational weight gain, fetal growth, and preterm birth. Maternal antigen avoidance during lactation should also be discouraged. Breast-feeding during the first 4 months of life, with or without formula supplementation, has been shown to modestly reduce the incidence of AD in infants at high risk.

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