The Significance (or Insignificance) of Lower Lipids in Adolescents Who Were Exclusively Breastfed

Alex H. Krist, MD, MPH

In their article, "Breastfeeding in Infancy and Lipid Profile in Adolescence," Hui et al[1] report that exclusive breastfeeding in early infancy may promote a healthier lipid profile in adolescence. In the original study, 8327 infants and families were recruited to prospectively study the impact of secondhand smoke. The sample represented 88% of all births in Hong Kong. Multiple factors were assessed at birth and early in life. At 17.5 years of age, 3261 participants agreed to a biobank clinical follow-up including anthropometric and lipid measurements. Key findings from this longitudinal follow-up included lower total cholesterol and low-density lipoprotein cholesterol for those who had been exclusively breastfed as infants compared with those who were formula fed. Similar results were not seen for those with mixed breast and formula feeding. Per Hui et al,[1] the associations between exclusive breastfeeding and lower cholesterols were independent of BMI.

This study has several strengths. The original population was representative of the general population of Hong Kong. Differences in breastfeeding were not due to education, a common confounder when assessing health outcomes. Contemporaneous reporting of breastfeeding during infancy eliminated risks of recall bias. However, the study also has important limitations. Because mothers self-select into exclusive breast, mixed, or formula feeding, there is significant potential for confounding. Using the multiple imputation with inverse probability weighting does minimize the impact of selection bias, but only measures for age 17 are imputed. Additionally, the small sample size for exclusive breastfeeding (7.5% of the total sample) could have introduced a random effect into the results.

More important, however, is the question of whether these findings are clinically significant. Hui et al[1] report that the mean low-density lipoprotein was 0.12 mmol/L or 4.64 mg/dL lower for those exclusively breastfed compared with those never breastfed. Although statistically significant, this difference may be clinically insignificant. Furthermore, it is unclear whether having a lower cholesterol at age 17 years translates to lower cardiovascular events later in life, particularly given such a small difference. Many factors contribute to cardiovascular disease beyond cholesterol, and cholesterol levels likely vary across a person's life span. If one adjusts for cholesterol values later in life, the age when people generally experience cardiovascular events, slightly higher cholesterols at younger ages may have minimal impact on cardiovascular outcomes later in life. This is exemplified by a longitudinal study of 9245 adolescents and young adults in which the association between mortality before age 55 years and cardiovascular risks was evaluated. In multivariate models, moderately elevated total cholesterol (200–239 mg/dL) was not associated with increased death, although cardiovascular events were not reported

Department of Family Medicine and Population Health, Virginia Commonwealth University, Richmond, Virginia

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Address correspondence to Alex H. Krist, MD, MPH, Department of Family Medicine and Population Health, Virginia Commonwealth University, One Capital Square, Room 631, 830 E. Main St, Richmond, VA 23219. E-mail: ahkrist@vcu.edu

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and there were only a small number of deaths.[2]

Clearly, there are many reasons to breastfeed infants and for clinicians to counsel new parents about the benefits of breastfeeding. The US Preventive Services Task Force (USPSTF) gave a "B" recommendation for clinicians to provide interventions during pregnancy and after birth to support breastfeeding.[3] The USPSTF found adequate evidence that a history of breastfeeding is associated with reduced illnesses, such as acute otitis media, asthma, atopic dermatitis, and gastrointestinal tract infection, as well as reduced chronic conditions such as obesity, diabetes, and high blood pressure.[4] The USPSTF found that any breastfeeding was more beneficial than no breastfeeding and longer durations conferred greater benefits. Similar to this study, the studies the USPSTF identified as revealing these associations were observational. However, it is notable that unlike the studies the USPSTF identified, this study found no association between breastfeeding and BMI, and mixed breast and formula feeding had no benefit compared to never breastfeeding. It is possible these differences may have been due to the relatively short period (3 months on average) of breastfeeding for the study population that Hui et al[1] reported.

It is probably premature for clinicians to include more favorable lipid profiles and potential long-term cardiovascular benefits from breastfeeding. Fortunately, we know breastfeeding reduces acute illness for infants and obesity, diabetes, and blood pressure later in life. Continued counseling to promote breastfeeding that focuses on these benefits is grounded in well-established evidence.

ABBREVIATION

USPSTF: US Preventive Services Task Force

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