

Correspondence

Breast-feeding, passive smoking, and asthma and wheeze in children

To the Editor:

We read with interest the paper by Patricia C. Chulada and colleagues in the February issue of this journal.¹ The authors used cross-sectional data from the third National Health and Nutrition Examination Survey to assess the associations between breast-feeding and the risk of asthma and recurrent wheezing in families with and without smokers. The authors conclude that “breast-feeding might reduce the prevalence of asthma and recurrent wheeze in children exposed to environmental tobacco smoke.” In their discussion, the authors claim that “The second finding of the study that breast-feeding might protect against environmental tobacco smoke (ETS)-related outcomes, has never been reported in spite of the known toxic effects of ETS on the respiratory system in children”. However, at least 2 earlier studies in the 1990s reported findings indicating that breast-feeding may protect from adverse effects of exposure to ETS on children’s respiratory health.^{2,3} In an Australian case-control study by Woodward and colleagues, breast-feeding reduced the risk of

respiratory proneness among 1- to 3-year-old Australian children exposed to passive smoking. In a cohort study of 3754 Oslo children (“the Oslo Birth Cohort”),³ we found that the risk of lower respiratory tract infections during the first year of life was related to passive smoking in children with short duration of breast-feeding but not in children who were breast-fed for more than 6 months (Table I). We have expanded the analyses to include, besides lower respiratory tract infections, analyses of episodes of wheezing the first year of life (in total and episodes not accompanied by a respiratory infection). Wheezing the first year of life was significantly correlated with the outcomes of lower respiratory tract infection (correlation coefficients, 0.2 to 0.4). The results of both the old³ and the new analyses indicate that breast-feeding protects against the adverse effects of passive smoking.

The health outcomes in the Australian and the Norwegian studies are strongly related to the occurrence of wheezing, also of recurrent wheeze in young children. Thus at least 3 epidemiologic studies with different study designs provide evidence consistent with the hypothesis that breast-feeding reduces the adverse respiratory effects of passive smoking in early life.

TABLE I. Risk of lower respiratory tract infections and episodes of wheezing during the first year of life in relation to the length of breast-feeding (long is >6 months) and maternal smoking when the child was 6 months of age: Oslo Birth Cohort 1992/1993

	Breast-feeding	Maternal smoking	n	Cumulative incidence	cOR	*aOR	95% CI
All lower respiratory tract infection(s)							
	long	No	1751	16%	ref		
	long	Yes	264	16%	1.0	1.1	0.7-1.6
	short	No	575	20%	1.3	1.3	1.0-1.7
	short	Yes	326	26%	1.9	2.2	1.6-3.1
Hospitalized lower respiratory tract infection(s)							
	long	No	1751	3%	ref		
	long	Yes	264	3%	1.1	1.1	0.5-2.7
	short	No	575	4%	1.4	1.4	0.8-2.5
	short	Yes	326	9%	2.6	4.6	2.5-8.3
An episode of wheezing, first year of life							
	long	No	1723	36%	ref		
	long	Yes	256	44%	1.4	1.3	1.0-1.8
	short	No	558	41%	1.2	1.2	1.0-1.5
	short	Yes	318	46%	1.5	2.2	1.0-1.8
An episode of wheezing, first year of life, not combined with a respiratory infection							
	long	No	1723	6%	ref		
	long	Yes	256	5%	0.8	0.7	0.4-1.5
	short	No	558	6%	1.1	1.0	0.7-1.6
	short	Yes	318	10%	1.9	1.6	1.0-2.7

*Reference category.

Children of occasional smoking mothers (n = 262) excluded.

cOR, Crude odds ratio; aOR, adjusted odds ratio.

Adjusted ORs are controlled for sex, having siblings, sharing of bedroom, day care outside the home, maternal education, parental history of asthma, and paternal smoking.

The mechanism for this is, as far as we know, not clear. It is plausible that breast-feeding reduces both the symptoms and the number of episodes of wheezing that are observed and registered. An alternative explanation is that breast-feeding reduces or delays the risk of development of respiratory diseases and wheezing as the most common sign of bronchial obstruction. Wheezing in young children is probably often related to viral infections.⁴ The protective effect of breast-feeding might as well be related to a reduced risk of viral infections and/or symptoms of viral infection as an effect related to a reduced risk of development of allergen-related respiratory diseases and/or symptoms. The findings raise the question: Does breast-feeding mainly reduce the respiratory effects of passive smoking or does it have more general effects?

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