

tective connection between breastfeeding and development of atopy has been suggested in several studies.

OBJECTIVE: Our goal was to investigate the correlation between breastfeeding and atopy.

METHODS: We screened 1525 children aged 2 to 5 years. Information on the outcome variables “ever wheezing,” “recurrent wheezing,” “diagnosed asthma,” “itchy rash,” “recurrent rash,” and “diagnosed atopic dermatitis” was obtained. Multiple logistic regression analysis was used to estimate the association of outcome variables with the independent variable (breastfeeding) after adjustment for gender and parental history of allergy.

RESULTS: Median duration of exclusive breastfeeding was 1 month (range: 0–2 months). Children who were breastfed exclusively for >3 months had 28% (95% confidence interval [CI]: 0.53%–0.98%) and 29% (95% CI: 0.51%–1.00%) lower likelihood of ever developing wheezing and recurrent wheezing, respectively. Partial breastfeeding seemed to place the children at significantly greater risk for ever and recurrent wheezing when compared with exclusive breastfeeding. There was no significant difference between exclusive breastfeeding versus formula feeding. Of the ever-breastfed children, 15.2% developed itchy rash versus 10.9% of those who never breastfed. Girls had a significant lower odds ratio (OR) for ever wheezing (OR: 0.76 [95% CI: 0.62–0.94]) and “diagnosed asthma” (OR: 0.60 [95% CI: 0.43–0.85]). Of the children studied, 3.7% had a positive parental background for allergy. Parental history of allergy comprised a significant factor that indicated a greater OR for all outcome variables apart from “diagnosed asthma.”

CONCLUSIONS: Breastfeeding seems to have a significant protective effect against the development of wheezing and asthma but not toward the development of skin atopy. A prospective randomized, controlled trial with longer follow-up time is required to confirm our findings.

ESSENTIAL FATTY ACID STATUS IN CORD-BLOOD ERYTHROCYTES AND POSSIBLE FETAL PRIMING OF ATOPY

Submitted by Georgia Skouli

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INTRODUCTION: Environmental factors, diet among them, that act during gestation may play an important role in determining subsequent atopy development. Studies conducted on adults and children have suggested that an imbalance of essential fatty acid (EFA) intake may predispose one to atopic diseases. Few data are available on the possible relation between EFAs and fetal priming of atopy.

OBJECTIVE: We sought to investigate the hypothesis that EFAs may play a role in the regulation of the fetal immune response.

METHODS: We collected umbilical cord-blood samples from 236 neonates with a gestational age of >34 weeks. Serum immunoglobulin E (IgE) levels and fatty acid composition of the erythrocyte membrane were determined by enzyme-linked immunosorbent assay and gas chromatography, respectively. Neonates were separated into 2 groups according to IgE value: the infants in group A had IgE levels of >0.35 IU/mL, and those in group B had IgE levels of ≤0.35 IU/mL.

RESULTS: Group A consisted of 30 neonates with increased IgE levels. Analysis of fatty acid composition revealed higher percentages of arachidic acid (20:0) (mean: 0.22 vs 0.19; $P < .05$) and docosahexaenoic acid (22:6n-3) (mean: 1.36 vs 1.04; $P < .05$) in the infants in group B.

CONCLUSIONS: Important differences were detected in cord-blood fatty acid composition in neonates with increased IgE levels. These differences suggest that EFAs may play a role in the development of atopy predisposition in utero life.

Cardiology

CLINICAL SIGNIFICANCE OF LINEAR SHADOWS INSIDE CORONARY ARTERIAL LESIONS ON TWO-DIMENSIONAL ECHOCARDIOGRAPHY IN PATIENTS WITH KAWASAKI DISEASE

Submitted by Akiko Hamaoka

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INTRODUCTION: In Kawasaki disease, we have detected linear shadows inside large- or moderate-sized coronary arterial lesions (CALs) on high-resolution two-dimensional echocardiography (2DE).

OBJECTIVE: For this study, we wanted to investigate the origin and clinical significance of these linear shad-

ows compared with findings on coronary angiography (CAG), MRI, and intravascular ultrasound.

RESULTS: Linear shadows were detected in 11 CALs on high-resolution 2DE in 9 patients with Kawasaki disease. The outer diameters of CALs on 2DE (7.0 ± 2.1 mm) were larger than those on CAG (4.4 ± 1.6 mm), whereas the inner diameters between linear shadows (3.9 ± 1.6 mm) were almost equal to the diameters of CALs on CAG. There was a statistically significant positive correlation ($y = 0.99x - 0.10$; $r^2 = 0.77$) between the diameters of CALs on CAG and the inner diameters between linear shadows on 2DE. A thickened intima was revealed in the same regions that showed linear shadows on 2DE, in 7 of 11 lesions on MRI, and in all 4 lesions on which intravascular ultrasound was performed. In 3 patients who had been followed up over 3 years, linear shadows inside CALs on 2DE persisted, and the diameter between linear shadows was almost consistent with the diameter of CALs on CAG.

CONCLUSIONS: These results suggest that linear shadows inside CALs on 2DE would reflect the existence of a thickened intima. We expected that following up the changes of linear shadows inside CALs was useful for noninvasive evaluation of coronary arterial remodeling such as intimal hypertrophy or stenotic change.

LONG-TERM FOLLOW-UP RESULTS OF PERCUTANEOUS CATHETER INTERVENTION FOR CORONARY ARTERY LESIONS AFTER KAWASAKI DISEASE: MULTICENTER COLLABORATIVE STUDY

Submitted by Masahiro Ishii

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INTRODUCTION: The long-term prognosis in patients with Kawasaki disease (KD) after percutaneous coronary intervention (PCI) remains unclear.

OBJECTIVE: We sought to clarify the long-term results of PCI for KD.

METHODS: Patients who developed coronary stenotic lesions caused by KD and were treated with PCI were investigated. Restenosis or obstruction was diagnosed when the stenosis was $\geq 75\%$ according to coronary angiography or ischemic change was observed by myocardial perfusion imaging.

RESULTS: A total of 55 stenotic lesions were reported in 49 patients in 5 institutions. The types of PCI included percutaneous transluminal coronary angioplasty ($n = 22$), stent implantation ($n = 7$), percutaneous transluminal coronary rotational ablation (PTCRA) ($n = 22$),

and combination of PTCRA with stent implantation ($n = 4$). Median age at PCI was 14.5 years, and the median follow-up period in the PCI group was 6.3 years. Of 55 stenotic lesions in the PCI group, 52 (95%) were dilated successfully by PCI. Immediate complications in the PCI group included neoaneurysm in 5 patients, transient bradycardia in 3 patients, and atrial fibrillation in 1 patient. Treatment for restenosis in the PCI group included re-PCI in 3 patients, coronary artery bypass grafting in 6 patients, and heart transplantation in 1 patient. No patient in the PCI group died. There was no difference in effectiveness among the 3 PCI devices (percutaneous transluminal coronary angioplasty versus stent implantation versus PTCRA: log-rank test, $P = .3$).

CONCLUSIONS: PCI for KD can be accomplished and can be effective in the long-term.

EXPOSURE TO TOBACCO SMOKE DECREASES ELASTICITY OF THE AORTA IN CHILDREN

Submitted by Katariina Kallio

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INTRODUCTION: Attenuated arterial elasticity is one of the earliest markers of atherosclerosis.

OBJECTIVE: Our aim was to investigate the relationship of passive smoking and elastic properties of the aorta.

METHODS: We studied 11-year-old healthy children ($n = 386$) from the randomized, prospective atherosclerosis prevention trial (STRIP). Aortic elasticity was analyzed by using M-mode ultrasound imaging on the basis of the measurement of blood pressure and arterial diameter changes during diastole and systole. Aortic compliance (AC) and aortic stiffness index (SI) were calculated. Exposure to tobacco smoke was measured by using serum cotinine concentration, which was analyzed with gas chromatography.

RESULTS: Cotinine concentrations ranged from nondetectable (detection limit: 0.16 ng/mL) to 6.8 ng/mL. Cotinine values and aortic elasticity measures were similar between genders. Children were classified into 3 groups according to their cotinine concentration: the top-decile cotinine group ($n = 39$), the nondetectable cotinine group ($n = 220$), and the low cotinine group ($n = 127$). Conventional atherosclerosis risk factors were similar between the 3 cotinine groups. A decreasing trend in AC ($P = .041$) and an increasing trend in SI ($P = .006$) was observed across the cotinine groups with an

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