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SAFETY OF MEASLES IMMUNIZATION (MI) IN CHILDREN WITH IgE-MEDIATED EGG ALLERGY. G Bruno, M Grandolfo*, C Pagnani, P Lucenti, C Yazzoler, L Businco. Dept. of Pediatrics, University of Rome "La Sapienza", Italy and *Dept of Epidemiology and Biostatistics, Istituto Superiore de Sanità, Rome, Italy.

It is known that there is a controversy in the literature about the safety of measles vaccine in children with IgE-mediated egg allergy, since the virus vaccine is grown in chicken fibroblast cell cultures, even though egg proteins could not be found.
Allergic reactions have, however, been observed in children without egg allergy. To ascertain whether MI does induce allergic reactions in egg allergic children, we have investigated 80 children (52 males and 28 females), median age 2 years 5 months, with a positive challenge test to egg and a positive skin test and/or RAST to egg. Prick tests to ovalbumin, checked after 20 minutes, were positive in 65 children (81%). Specific IgE (Phadebas, RAST, Pharmacia, Uppsala) to egg, judged positive if higher than 0.35 UI/ml, was present in 67 children (83%). To confirm egg allergy, an open challenge test was done under observation and with emergency equipment at hand. Reactions were defined as immediate if the first symptoms occurred within 4 hr of egg ingestion and delayed if these occurred after 4 hr. After the challenge test, 52 children (65%) showed immediate allergic reactions; asthma and/or oculorhinitis and/or rash in 25 (31%), angioedema and urticaria in 27 (34%); 28 (35%) worsening of atopic dermatitis. These 80 children received subcutaneously 0.5 ml of Morbilvax vaccine (Sclavo, grown in chicken fibroblast cell cultures) and were checked within 4 hr for any immediate allergic reactions. In addition, the parents recorded possible reactions such as fever or rash at home. No allergic reactions were noted after MI. The usual reactions to vaccine, including fever and attenuated rash, were recorded in 14 (17%): fever in 10; attenuated rash in 3; attenuated rash and fever in 1. We conclude that MI seems to be safe even in children with documented egg allergy.

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TOTAL EOSINOPHILS, EOSINOPHILIC CATIONIC PROTEIN (ECP) AND PROTEIN X (EPX) IN ASTHMATIC PATIENTS YOUNGER THAN AGE 5. B.Zimmerman[1],R.Zimmerman[1],I.Enander[2],S.Ahlstedt[2], [1]Advers Reaction Clinic, Toronto.[2]Pharmacia Diagnostics, Uppsala.

We previously showed that serum ECP levels in teenagers with acute asthma correlated with severity of acute asthma (JACI 87:1991,#433). 27 asthmatics median age 2 years had eosinophils, ECP and EPX quantitated prior to therapy. Atopic patients (13 with at least 1 positive prick skin test) had higher levels of eosinophils, ECP and EPX compared to non-atopic (Eos 0.61 vs 0.34 p = 0.03; ECP 36.9 µg/l vs 15.7, p<0.001; EPX 63.2 vs 23.1, p<0.001). One patient at 1 year of age had no skin tests positive, serum IgE of 8 µg/l and ECP of 50.1. One year later, he was positive to peanut confirming atopy. 13 of these patients required treatment with continuous inhaled steroid, 9 atopic, mean ECP 39.0 and 4 non-atopic, mean ECP 11.9, p<0.001. After inhaled steroid 6 atopics were reassessed. ECP level decreased to 21.0, p = 0.03. We conclude that atopic asthma in young children is associated with higher levels of ECP and EPX than non-atopic suggesting heterogeneity in the mechanism of inflammation. In one instance the elevated ECP predicted atopy before IgE antibody. With treatment ECP fell suggesting decreased activity of eosinophils.

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SERUM EOSINOPHILIC CATIONIC PROTEIN (ECP) IN CHILDREN WITH ASTHMA AND HAY FEVER. G.Lis E.Cichocka-Jarosz, J.J.Pietrzyk, P.Sucharski. 1st.Dept.of Pediatrics, Dept.of Biochem., Polish-American Children's Hospital, Copernicus Medical Academy, Cracow, Poland.

The importance of eosinophils in the pathogenesis of allergic diseases is not completly established. To evaluate the role of this cells in asthma and hay fever, the levels of their product, ECP, were compared during pollen-free and pollen season. Material and methods: 18 children with extrinsic asthma, 13 with hay fever and 15 normal children used as the controls were studied. ECP in serum was measured with an RIA and the tests were performed twice (during the winter and the summer). Results: In the analysis of variance there were significant differences in ECP levels between the groups of children during the winter (F=5.85 p<0.001) and the summer (F=4.48 p<0.02). In the winter, ECP in asthma children was significant higher than in control (t=2.45 p<0.01) and hay fever children (t=2.57 p<0.01). In the summer, ECP levels in asthma patients remained significantly higher than in control group (t=3.83 p<0.001). Also, the levels in hay fever patients increased significantly in comparison to control group (t=2.18 p<0.02). There were significant increases in ECP levels between winter and summer in hay fever group (t=3.18 p<0.01) and in control group (t=3.33 p<0.05). Regression analysis revealed significant correlation between ECP levels and the number of peripheral-blood eosinophils in all studied children in both seasons: winter (r=0.5 p<0.002) and summer (r=0.6 p<0.001). Conclusions: correlated changes of ECP levels, exposition and symptoms in asthma and hay fever may suggest a role of this protein and eosinophils in allergic diseases.

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RESULTS OF A MULTICENTER STUDY ON THE PREVENTION OF ATOPY IN "AT RISK" BABIES (3 YEARS FOLLOW-UP). G Bruno, PG Giampietro, L Businco. Dept of Pediatrics, University of Rome "La Sapienza", Italy.

We have planned a prevention programme of atopic diseases in high risk babies with the cooperation of 40 Maternity Hospitals. The aim of this study is to evaluate the effect of dietary and environmental measures in the development of atopic disease in newborns of atopic parents. The dietary measures are the following:exclusive breast feeding for the first six months of life; elimination of cow's milk (CM) and egg from the diet of the nursing mother; soy milk (Isomil Abbott) supplement when breast milk is not sufficient; selected weaning after the 6th month of life. The environmental measures are the following: no smoking in the house; strict environmental controls for the elimination of house dust; no pets in the house; day-care center attendance delayed to after 3 years of age. All infants were seen at an age of 1, 3, 6, 9, 12 months and twice-a-year afterwards, and a detailed history is taken and the presence of symptoms and signs of atopic disease are examined (bronchial asthma, atopic dermatitis (AD), food allergy): Up to now, 732 children are 2 year old: 379 (52%) are males and 353 (48%) females; 98 (13%) have two or more relatives affected by atopic disease, 634 (87%) have one relative affected. 242/732 (33%) were exclusively breast feed until the 6th month of life, 139/732 (19%) received exclusively soy milk, 212/732 (29%) received breast milk and soy milk supplement, and 139/732 (19%) were CM formula fed. At the last follow-up (2 years) the cumulative prevalence of atopic disease was 17% (125/732 children). In detail, 83 (11%) showed AD, 28 (4%) asthma, and 14 (2%) rhinitis. Of the 125 babies with atopic disease, 81/379 (21%) were males and 44/353 (12%) females ($p<0.01$); 28/98 (29%) of the babies have two or more relatives affected by atopic disease, 97/634 (15%) have one relative affected by atopic disease ($p<0.01$). Among the children who developed atopic diseases: 13% (31/242) were exclusively breast-fed until the six month of life, 10% (14/139) received soy milk, 15% (32/212) were breast milk and soy-milk fed, and 34 % (48/139) CM fed. The very low prevalence of atopic disease in the infants who followed the preventive measures (12%) and the higher (34%) in those who did not ($p<0.01$) stresses the importance of such manipulations for the prevention of atopy in "at risk babies".

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EFFECT OF COW´S MILK CHALLENGE ON EOSINOPHIL DEGRANULATION IN DIFFERENT SUBTYPES OF COW´S MILK ALLERGY (CMA)
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To elucidate the pathogenic mechanisms underlying the development of different subtypes of CMA, cow´s milk-induced eosinophil activation in vivo was studied. After 2-4 weeks on milk elimination, 25 children, aged from 6 to 44 months, with CMA manifested either with skin or gastrointestinal symptoms were challenged. Serum samples were drawn before the challenge (day 1), 27 (12) hours after commencing the challenge (day 2) and one week later. The levels of eosinophil cationic protein (ECP) were determined by human ECP-RIA Kit. Total IgE and cow´s milk-specific RAST were measured before the challenge. Sixteen patients (64%) showed urticarial or eczematous skin eruptions during the challenge, 9 patients manifested gastrointestinal symptoms. The levels of ECP (µg / l) and total IgE [95% CI] and positive cow´s milk-specific RAST (% of patients) are illustrated in the Table.

MANIFESTATION OF CMA	ECP DAY 1	ECP DAY 2	IgE	RAST
Skin symptoms (n=16)	5.5 [4.1,7.4]	15.7 [11.0,22.5]	34 [8,148]	50%
Gastrointestinal symptoms (n=9)	5.7 [4.2,7.9]	5.3 [3.2,8.7]	20 [2,373]	37%

The group behaviour of these two subtypes of CMA was different; at successive measurements the level of ECP increased in patients with skin symptoms, but not in those with gastrointestinal symptoms, F=7.1, p=0.01 (ANOVA for repeated measures). The increased degranulation was shown to be transient. We conclude that eosinophil activation is an important part of the complex network of immunologic mechanisms leading to allergic inflammation in CMA manifested with skin symptoms. Our results do not exclude eosinophil activation in patients with gastrointestinal symptoms, but lack of a systemic response suggests distinct regulation of hypersensitivity reaction.

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GASTROESOPHAGEAL REFLUX AND THEOPHYLLINE IN ASTHMATIC CHILDREN
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Gastroesophageal reflux (GER) is considered to be one of the triggering factors of asthma attacks. It is believed that theophylline (TE) exacerbates GER occurrence. To evaluate the influence of TE on GER intensity in asthmatics we examined 10 stable asthmatic children aged from 3 to 11 yrs, before and during TE treatment within therapeutical TE serum range. The GER was evaluated by 24 hr esophageal pH monitoring. Pathological GER was found in 7 non treated and in 8 treated children. There was no statistically significant difference in GER parameters between first and second examination (p>0.05). Results were expressed as mean and ±SD. Paired t-Student test was employed for calculations.

ASTHMATICS	# GER	# GER >5min.	Longest GER	% time pH<4
TE (-)	25.9±19.5	1.8±2.1	17.3±18.5	4.2±3.9
TE (+)	38.8±24.0	4.2±3.7	26.5±20.5	10.7±12.6

Conclusion: The GER in asthmatic children occurs frequently and in some children theophylline may slightly exacerbate its symptoms.