246 IMMEDIATE TYPE HYPERSENSITIVITY TO OVALBUMIN IN INFANTS AND CHILDREN - A MODEL FOR THE STUDY OF FOOD ALLERGY.

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Ovalbumin has previously been demonstrated by us to be a major allergen of hen's egg (Folia Allergol.Immunol.Clin. 30, 83 (1983)). In order to determine the value of allergological in vitro methods for the evaluation of food allergy, we studied 26 infants and children (3 months - 12 years) with egg allergy and 10 healthy controls. Serum concentrations of specific IgE and IgG antibodies to ovalbumin were determined utilizing highly sensitive radioimmunoassays. In addition, washed leukocytes from all patients were incubated with serial dilutions of ovalbumin for allergen induced histamine release. Histamine was assayed by the automated fluorometric technique. Titrated oral provocation tests with ovalbumin (1 mg up to 1 g) were performed in all patients. After oral provocation a typical immediate hypersensitivity reaction (urticaria, asthma, intestinal symptoms) was induced in 17 out of 26 children. Neither the presence of specific serum IgE antibodies to ovalbumin nor a positive histamine release test predicted the clinical relevance of ovalbumin sensitivity.
Our data indicate that allergen induced histamine release from leukocytes tends to give a better correlation with the results of provocation tests than specific serum IgE. However, all provocation tests should be performed to confirm a clinically relevant sensitivity to foods.

247 SURVEY OF HAY-FEVER IN ISRAELI CHILDREN.

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Central and Southern Israel have a desert climate (8 dry months/year) with Mediterranean influences along the sea-shore and very rich grass vegetation (all planted and artifically irrigated). Children, especially those in rural settlements (Kibbutzim and Moshavim), spend much of their day-time from the early weeks of their lives on the lawns. In order to investigate environmental influences on the clinical pattern of hay-fever (H.F) we examined 86 children presenting with typical H.F. for: age of onset and severity of symptoms, as well as IgE levels and skin tests to 20 allergens. Out of 46 children living in rural areas, H.F. symptoms in 36 began between 2-4 years of age, 9 between 5-7, and 1 at age 10yrs. 24 cases had positive skin tests to more than 3 pollen extracts, and 21 to less than 3. Out of the 40 children living in cities, 10 developed H.F. between 2-4 years, 9 between 5-7, 16 between 8-11 and 6 between 12-15 years. 6 had positive skin tests to more than 3 pollens and 35 to less than 3. Severity of symptoms and IgE levels did not differ between rural and city children. Conclusions: atopic children living in rural areas with desert climate and irrigated vegetation, develop more sensitivities to grass pollens ($P<0.005$) and earlier H.F. symptoms ($P<0.005$) than city children in the same climate. All our children (rural and city) develop H.F. at earlier ages than reported in the literature.

248 CORD-BLOOD IgE DETERMINATION BY ENZYME-IMMUNO-ASSAY. CORRELATION BETWEEN ABOVE NORMAL IgE VALUES AND LYMPHOCYTE-POPULATIONS.

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Cord-blood IgE was determined prospectively in 300 neonates by an enzyme-immuno-assay(Phadezym-Prist)(EIA) and a radio-immuno-assay (Phadebas-Prist)(RIA). In order to obtain sufficient sensitivity for the EIA, determinations were performed with undiluted sera, and calibration curves were newly established. The lowest value determined was at 0.125 kU/l. A comparison of EIA and RIA revealed no significant differences for single determinations. The geometric mean was 0.246 kU/l; 2-SD was 1.0 kU/l for both test systems.
10% of the cord-blood values were above 1.0 kU/l (n=29 neonates); a follow-up of these 29 infants 18 months after birth detected 19 with symptoms of atopy (atopic dermatitis=14; allergic asthma=4; urticaria with cow-milk-allergy=1).
The presented data would suggest that EIA and RIA are comparably sensitive and valuable methods for the determination of IgE-levels in cord-blood. An early risk factor for the development of atopic diseases in infancy can thus be detected.
In addition, 200 of the 300 cord-blood sera were studied for T- and B-lymphocyte distribution by the use of monoclonal antisera in a routine immunofluorescence assay. A correlation between above normal values of IgE ($>$ 1.0 kU/l) and the distinct lymphocyte populations, including T-helper- and T-suppressor-cells, could not be demonstrated.

249 PROGRESSIVE BICYCLE EXERCISE IN ASTHMATIC CHILDREN

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Twenty seven asthmatic children (A) aged 126 ± 29 months, and twenty seven ordinary children of the same age (C) were studied. FeO2, FeCO2, minute ventilation ($\dot{V}E$), breathing frequency (BF), heart rate (HR), blood pressure (BP), oxygen consumption ($\dot{V}O2$) and respiratory exchange ratio (QR) were determinated during each stage of the progressive exercise and during the recovery. In the asthmatic group, there are significant decreases of FeO2, FeCO2, VO2, load and QR at each stage and during the maximal exercise (Table I) The cardiac and respiratory recovery at 10 min were slower in A than C : BF = 120 ± 11 vs 104 ± 3 ($p<0,01$) and $\Delta\dot{V}O2$ = 0,10 ± 0,11 vs 0,01 ± 0,15 ml/min ($p<0,05$).

	load (watt)	FeO2	FeCO2	$\dot{V}E$	BF	BP	$\dot{V}O2$	QR
A	144±28	3,3±0,3	3,4±0,4	46±18	50±10	15±2	44±10	1,1±0,1
C	173±28	3,6±0,4	4,1±0,5	52±17	49±11	16±2	53±9	1,2±0,1
p %	1	1	0,1	NS	NS	NS	1	NS

Ventilation-perfusion maldistribution and obstruction during the exercise could explain the little limitation at the exercise in this group of asthmatic children.

250 SCG EFFECT ON MACROMOLECULAR ABSORPTION OF FOOD ANTIGENS IN ATOPIC DERMATITIS (AD).

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In children with AD an abnormal absorption of macromolecules (mac) through the gut was observed. We challenged 6 children (11 mths. to 11 yrs. of age) affected by AD with in vivo and in vitro evidence of hypersensitivity to ovoalbumin (OA) and 4 to cow's milk (α-lactalbumin AL) . The children were challenged with the specific allergenic food, the challenge was repeated with the pretreatment of oral SCG (40 mg/kg). The detection of mac. (OA,AL) in circulation was performed in solid phase (Paganelli et al.).

Results:

1) All the patients had skin and gut symptoms on the 1st occasion. Pretreatment with SCG prevented the occorrence of immediate symptoms;
2) Circulating Ag detected in sera after specific food challenge:

challenge	Ag	n. Cases	no SCG	yes SCG
egg (white)	OA	6	8,3 µg/l	4,1 µg/l
cow's milk	AL	4	2,1 µg/dl	1,5 µg/dl

SCG was able to reduce the absorption of mac.
This finding may indicate that effectiveness of SCG in preventing the symptoms is due to both reduced and delayed absorption.

251 IMMUNODEFICIENCY IN CHILDREN WITH RECURRENT RESPIRATORY INFECTIONS.

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54 children, M:F=1:1, with recurrent respiratory infections and with normal sweat sodium, were screened for immunodeficiency, including serum immunoglobulins, nitroblue tetrazolium test, neutrophil and monocyte candida phagocytosis and killing, random locomotion and chemotaxis, and Saccharomyces opsonisation. 33 (61%) patients had at least one immune abnormality, including IgA deficiency 4%, opsonisation defect 19%, neutrophil or monocyte killing: serum dependent 30%, cell dependent 15%, and locomotor defect 26%. Some patients had more than one defect. Two patients with laevocardia and situs solitus had ciliary abnormalities, one transiently, and both had asthma but no immunodeficiency. There was no difference in the incidence of asthma in patients with and without immunodeficiency (17 of 33 v 14 of 21). Bacteria were isolated from sputum in 63% (34 of 54), the commonest organism being Haemophilus influenzae found in 52% with immunodeficiency and 38% without, whereas no difference was found for Pseudomonas (19%), Group A Streptococcus (20%) and Strep. pneumoniae (27%).
This demonstrates that significant immunological abnormalities are common in patients with recurrent chest infections, with or without asthma, and are much commoner than ciliary defects in cystic fibrosis or Kartagener's syndrome. Isolated opsonisation defects are uncommon and may only be clinically relevant if associated with other serum dependent defects of phagocytosis and/or killing.