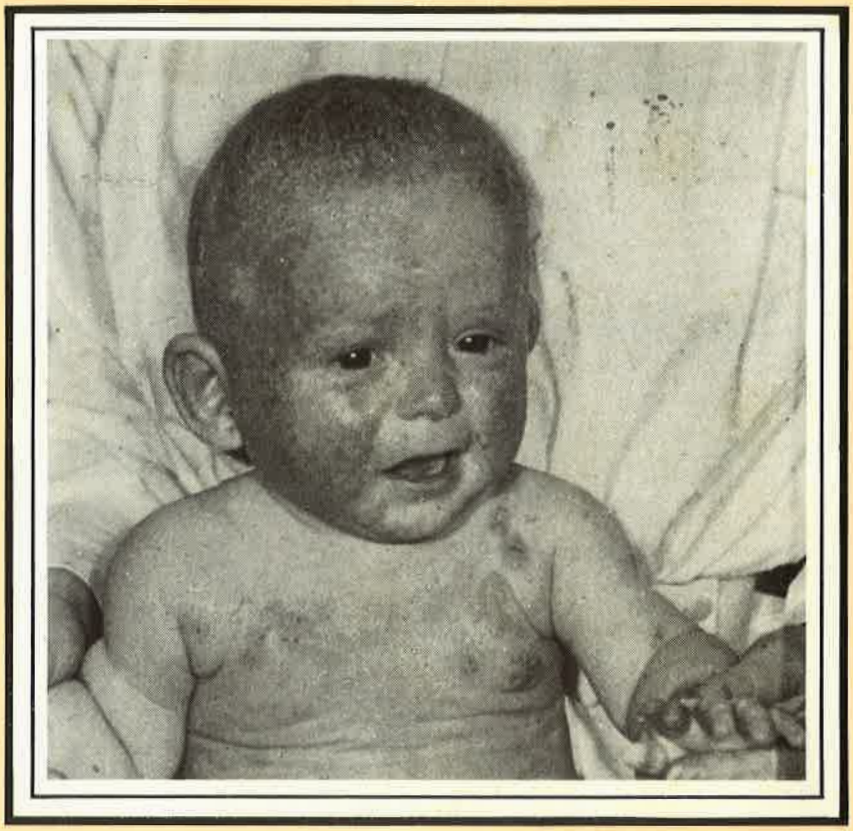

ABSTRACTS
FOURTH INTERNATIONAL SYMPOSIUM OF ATOPIC DERMATITIS

MAY 26—29, 1991
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Monday, May 27, 1991

Morning session.

The secular change in the occurrence of atopic dermatitis. **Schultz Larsen, F.** (Fredericia, Denmark).

Recent epidermiological and genetic studies in atopic dermatitis. **Diepgen, T. L.** (U. of Erlangen, Germany).

Prevalence of atopic dermatitis among school children in Northern Norway. **Falk, E.S., Bolle, R.** (U. of Tromsø, Norway).

Reevaluation of the skin lesion distribution in atopic dermatitis. Analysis of cases from 0 to 9 years. **Aoki, T., Adachi, J., Endo, K., Hukuzumi, T., & Kojima, M.** (Habikino Hosp. Osaka, Japan).

Factors influencing the localization of atopic dermatitis. **Bonifazi, E.** (U. of Bari, Italy).

The barrier function in atopic xerosis-disturbance of lamellar bodies and epidermal lipids. An ultrastructural study. **Fartasch, M.** (U. of Erlangen, Germany).

Microbiological study of atopic eczema. **Goodyear, H.M., Watson, P.J., Egan, S.A.** et.al. (Hosp. for Sick Children, London, England).

ADASI: the new scoring system for the assessment of disease severity, combined with trend analysis and time series methods. **Bahmer, F.A.** (U. of Hamburg/Saar, Germany).

The immunopathogenic role of food hypersensitivity in atopic dermatitis. **Sampson, H.A.** (U. Johns Hopkins, Baltimore, USA).

The secular change in the occurrence of atopic dermatitis.

Finn Schultz Larsen

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Atopic dermatitis is a commen disease, and in recent decades it seems to have been more and more commen. Population based studies, including twin studies indicate that the prevalence of atopic dermatitis has increased substantialy during the last 4o years. As the onset of the disease occurs in 8o-9o% of the cases before 7 years of age the epidemiology of atopic dermatitis has been studied at the admission of first grade school-children

Before 196o it was about 2-3% of children who suffered from atopic dermatitis. In the 6o'thies approximately 4-8% was recorded in most studies. In those born after 197o researchers have found that 9-12% of children developed atopic dermatitis during childhood.

With the intention to expand previous findings a new population based twin study has been carried out in Denmark. The main epidemiologic data showed that 11,5% of those born 1975-79 have or have had atopic dermamatitis in 1987.

In order to compare epidemiologic data from different countries a framework for a mailed questionnarie study in atopic dermatitis is proposed.

RECENT EPIDEMIOLOGICAL AND GENETIC STUDIES IN ATOPIC DERMATITIS

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In a prospective computerized study basic and minor features of atopic dermatitis were systematically studied in established cases of atopic dermatitis (AD; n=428), in subjects randomly collected from the caucasian normal population of young adults (NP; n=650) and in patients with hand eczema (HE; n=458). It was possible to obtain complete genetic data (history of atopic dermatitis, allergic rhinitis, allergic asthma) from 1536 families comprising over 10,000 family members.

According to our pedegree analyses risk figures for genetic counselling are given. In short, the general risk of developing AD and atopy increases by a factor of slightly more than two with each first-degree family member already suffering from atopy. Our study further supports the evidence of a genetic influence on symptom specificity.

The diagnostic value of atopic features has been analyzed and evaluated statistically by a multivariate model (logistic regression, CHART analysis). On the basis of statistical modelling a diagnostic score system was constructed which in 98 % gave the correct diagnosis. Some typical basic features have thus been found of minor importance because of their high frequency in control material, other minor features have emerged as important factors because of their high odds ratios. Our results clearly demonstrate that the evaluation of clinical atopic basic and minor features are necessary to confirm the diagnosis.

The complex interplay of endogenous (atopic) factors in the occurrence of hand eczema was studied systematically. According to statistical analysis signs of inhalant atopy (e.g. rhinitis, allergic asthma) does not increase significantly the risk of developing HE. In contrast signs of atopic skin diathesis predisposed the individual to HE (odds ratios: wool intolerance 4.6, xerosis 3.7, white dermographism 3.3, itch when sweating 5.3, keratosis pilaris 4.1, hyperlinear palms 6.4, perleche 2.7). The odds ratios of elevated IgE (> 150 U/ml) and postive Phadiatop® were only 1.6 and 1.8, respectively. Thus the atopic skin diathesis is a strong predictor for hand eczema.

A score system based on traditional atopic features is proposed which may be a tool to estimate the atopic risk in non affected individuals and can be used in pre-employment examination.

Prevalence of atopic dermatitis among school children in Northern Norway.

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In order to study the prevalence of atopic dermatitis in Northern Norway, 11.000 school children aged 7-13 years were asked to complete questionnaires. A higher prevalence of atopic dermatitis was found among children living by the coast as compared to those living in land. The total prevalence of atopic disease was also higher among children living in coastal areas as compared to those living in land. Possible explanations related to background factors are discussed.

Revaluation of skin lesion distribution in atopic dermatitis. Analysis of cases 0 to 9 years of age.

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Osaka, Japan.

It is said that atopic dermatitis shows characteristic appearance and characteristic distribution of skin lesions. Except short statements in the Hanifin & Rajka's "diagnostic criteria", however, these have not yet been well documented.

We, therefore, analyzed distribution of the skin lesions in all atopic children between the age 0 and 9 attending our out-patient clinic during two years 1989 and 1990. At first visit, 53 skin areas were inspected and presence or absence of the eruption was recorded and history taking and allergy tests were performed at the same time. Only those who fulfilled Hanifin & Rajka's three major criteria other than the present aim were studied. Totally 818 patients were divided into six age groups (3-5 months, 6-11 months, 1 year, 2 year, 3-4 years and 5-9 years) and percentile appearance of the lesion in each area was compared.

In babies under the age of one, the cheeks, scalp, pre-auricular areas and chin were very highly involved. The chest, back and outside of the upper arm were involved very frequently at all age groups. The cubital and popliteal fossae, neck and nape were involved through all age groups but higher at 5-9 years. The buttocks, pre- and post-axillary area and femoral area were the predilection sites of higher age groups. The other areas were not much changed by age in percentile involvement.

However, it was noted unexpectedly that the trunk was one of important predilection sites in atopic dermatitis at all age groups.

FACTORS INFLUENCING THE LOCALIZATION OF ATOPIC DERMATITIS

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Factors influencing the localization of atopic dermatitis are reviewed in the light of the personal experience and the relevant literature.

Even in case of localized lesions, atopic dermatitis probably involve the entire skin surface as shown by the histological findings of the so called "dry skin" in atopic patients. However, in many cases of atopic dermatitis, particular sites are involved and the pattern of distribution is one of the major diagnostic criteria.

The face is usually the first site involved with a various extente, in most cases of atopic dermatitis starting in the first months of life. The tip of the nose is the last site involved on the face and it is usually spared even in the most severe cases. The involvement of the face diminishes with time, to become extensive only in case of photosensitivity.

The involvement of the face in the first months of life is often associated with the involvement of the scalp and the dorsal aspect of the hands suggesting the role of external factors. Such factors are also important in the irritant contact dermatitis of the hand, which probably represents the most frequent localization of residual atopic dermatitis in adults.

On the other hand, the diaper area is usually spared in atopic dermatitis in the first 2 years of life; sometimes it is the only area free of lesions in severe, generalized cases.

In some adolescents and young adults with atopic dermatitis the upper part of the trunk is mainly involved, suggesting a role of seborrheic diathesis and pityrosporon ovale.

In children atopic dermatitis may be located around congenital nevi, sometimes making difficult the differential diagnosis from mastocytoma.

Studying the various localization of atopic dermatitis may contribute to clarify the pathogenesis of the disease and may suggest the right therapeutical approach.

THE BARRIER FUNCTION IN ATOPIC XEROSIS - DISTURBANCE OF LAMELLAR BODIES AND EPIDERMAL LIPIDS. AN ULTRASTRUCTURAL STUDY.

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Atopic xerosis is a characteristic feature of atopic eczema (AE) patient and is principally independent of eczematous eruptions. Pathophysiologically atopic xerosis shows an increased trans-epidermal water loss (TEWL) which indirectly reflects a defective barrier. The intercellular epidermal lipids of the horny layer which derive from the lamellar bodies (LB) are responsible for the waterholding capacity of the horny layer. Alterations of epidermal lipids are believed to lead in defect of the barrier function of the skin.

The stereological ultrastructural analysis of non-lesional skin of AE-patients (n=9) compared with healthy controls (n=7) showed that the extruding mechanism of lamellar bodies in atopics was slowed down and incomplete. The postfixation with rutheniumtetroxyde/potassium ferrocyanide permited the visualization of lipid lamellae throughout the stratum corneum. In atopics the lipid lamellae formation war delayed probably due to the altered extruding mechanism of the lamellar bodies.

The reactions of the horny layer (specially the intercellular epidermal lipids) and the vital epidermis in sodium dodecyl sulphate (SDS)-induced dry skin were analysed ultrastructurally in atopics and controls. Simultaneously the TEWL (evaporimeter) was monitored. Biopsies were performed when maximum TEWL was reached. The ultrastructural study showed that inspite of beginning cell damage of the vital epidermis intact intercellular lipid layers were still present in the horny layer (0.5% aqueous SDS). With 1% SDS the horny cells and the lipid lamellae were affected both (corresponding with higher TEWL). SDS-induced dry skin (low SDS concentration) is unlikely to be linked with direct selective extractions of epidermal lipids. Probably damage of the viable portions of epidermis resulting in disturbance of keratinization and leads secondary to abnormal epidermal lipids and altered horny cells.

MICROBIOLOGICAL STUDY OF ATOPIC ECZEMA

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The bacterial flora of the skin and antibiotic resistance patterns were studied in 50 children with eczema, referred to the hospital for the first time, representing a community based population. Exclusion criteria were previous hospital treatment for eczema and recent antibiotic therapy. 20 controls were recruited from non-atopic children presenting to the hospital with an unrelated non-infective disorder. Contact agar discs (CADs) were prepared using a novel technique and compared with routine bacteriological swabs in charcoal medium.

Staphylococcus aureus (SA) was the most common pathogen isolated in 37 (74%) of patients. 15 (30%) patients had SA isolated from clinically uninvolved skin. Quantitative assessment showed that the colony density was proportional to severity of eczema. SA was not isolated from the forearm site of any of the controls. CADs were consistently more sensitive than routine swabs. Carriage rates of SA in patients were 20% nose, 12% axillae and 18% groins. In contrast controls grew SA in 10% nose, but not from other sites. The most common phage type was Group II (32%). Resistance to penicillin was present in 88% of strains and to 2 or more antibiotics in 38%. No relationship was noted between the pattern of resistance and phage type.

The importance of these findings will be discussed in relation to the management of atopic eczema.

ADASI (Atopic Dermatitis Area and Severity Index): the new scoring system for the assessment of disease severity, combined with trend analysis and time series methods, allows the accurate evaluation of the time course of AD and the efficacy of therpeutic measures

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The evaluation of therapeutic methods in chronic skin diseases such as AD is hampered by two main problems. Firstly, the scoring systems used for the assessment of disease severity are neither simple nor accurate. Secondly, the enormous inter-individual and individual variation in disease severity makes the usually employed group statistics somewhat inefficient. - To solve the first problem, a scoring system was developed which is based on colour coding of the affected areas on body schemes with subsequent evaluation by simple point counting. The procedure is as follows: on body schemes showing marcant points to allow for easy location, the most severely areas are outlined with red colour (r), the least affected with green (g), and the intermediate ones with blue (b). The extent of these coded areas is determined within a couple of minutes by point counting with a simple lattice grid. According to well known and old principles, the number of points falling onto the respective colour coded area corresponds directly to the area fraction involved. Thus, if a total of say 20 points fall onto the body schemes (front and back), and 2 points fall onto areas coloured red, 10% (2/20) of the body scheme area is afflicted by severe dermatitic change. To cope with the impact more severely affected skin areas have for the patient and for therapy, for the calculation of the ADASI-scora weighting of 2fold is given to "b" areas, and of 3fold to "r" areas. The ADASI-score is then obtained by the formula

$$ADASI = (1*G + 2*B + 3*R) * (I+1)$$

where G, B and R are the area fractions of the respective colours, and I the intensity of the itch, assessed on a 0 to 5 scale by the patient himself. This simple and rapid scoring systems yields values between 1 and a maximum of 18. - To overcome the problem arising from the enormous variation of disease severity in the individual and between the individuals, as well as to cope with the usually extremely chronic nature of the disease, the patient himselfs documents the ADASI-score daily. The data obtained form a time series, which accordingly is analyzed by time series models such as those of BOX and JENKINS. The efficacy of a therapeutic intervention is assessed by intervention analysis, e.g. according to BOX and TIAO, or by trend analysis methods such as those of COX and STUART. Provided that a sufficent number of data points is available for analysis (model-dependent), these methods, combined with our ADASI scoring system, provide new and exciting possibilities for the evaluation of the course of chronic diseases such as AD and the evaluation of therapeutic effects. The method is demonstrated on the data obtained from a study of the effect of borage oil in AD.

THE IMMUNOPATHOGENIC ROLE OF FOOD HYPERSENSITIVITY IN ATOPIC DERMATITIS

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Atopic dermatitis is a form of eczema characterized by marked pruritus, characteristic distribution, relapsing or chronic course, and association with asthma and allergic rhinitis. A variety of "trigger" factors, immunologic and non-immunologic, are known to provoke flares of atopic dermatitis. In the past 10 years, we have studied 271 children [median age: 4.7 yrs] referred for evaluation of refractory eczema and possible food hypersensitivity. All children were highly atopic; 85% had elevated serum IgE [median: 3400 IU/ml] and 77% have asthma and/or allergic rhinitis at the time of initial evaluation.

All children were admitted to a clinical research unit for evaluation by double-blind placebo-controlled oral food challenges [DBPCFC]. Foods selected for challenge were based on history, skin test, and/or RAST results. Overall, 63% of patients had at least one positive DBPCFC, 75% of whom reacted to only one or two foods. Reactions provoked by challenge occurred within minutes to 2 hrs. and included cutaneous [73%], gastrointestinal [41%], and respiratory [35%] symptoms. The immediate reaction was associated with the development of a pruritic morbilliform rash, a significant rise in plasma histamine, and no change in complement activation products or circulating basophil numbers, histamine content, or "spontaneous" releasibility. Although initial symptoms are generally abrupt in onset and short-lived, many patients experience a second onset of pruritus and erythema which is insidious in onset and more long-lived. Biopsies of involved skin sites show infiltration of eosinophils and deposition of eosinophil "major basic protein."

Chronic ingestion of food allergens has been associated with increased "spontaneous" basophil histamine release, "spontaneous" generation of "histamine-releasing factor" by peripheral blood mononuclear cells in vitro, increased numbers of circulating "hypodense" [activated] eosinophils, "cutaneous hyperreactivity," and abnormal gastrointestinal permeability as measured by lactulose/rhamnose absorption. Patients with food hypersensitivity all have been found to possess a unique form of IgE [IgE^{+}], which is responsive to histamine-releasing factor. Complete elimination of relevant food allergens leads to significant clinical improvement in the majority of patients with decreased cutaneous hyperreactivity, loss of "spontaneous" basophil histamine release and histamine-releasing factor generation, normalization of circulating eosinophils, normalization of gastrointestinal absorption, and eventually loss of symptomatic food hypersensitivity. Although IgE-mediated food hypersensitivity is only one of many "trigger" factors for eczema, a recent study suggests it may be an important pathogenic factor in one-third of children with atopic dermatitis.

Monday.

Afternoon session.

Type I allergy to foods in atopic dermatitis: comparison between RAST-positive and RAST-negative cases. **Uehara, M.** (U. of Shiga, Seta, Japan).

Food immediate contact hypersensitivity (FICH) and elimination diet in atopic dermatitis. **Oranje, A.P., Aarsen, R.SR., Mulder, P.G.H., van Toorenbergen A.W.** et al. (U. of Rotterdam, The Netherlands).

Role of environmental pollution in the development of atopic disease. **Ring, J., Kunz, B., Vieluf, D., Gries, A.** et al. (Dept. of Dermatology, U. of Hamburg, Dept. of Derm., Inst. for Med. Statistics, Inst. for Balneology, Munich, Germany).

A study of immunoresponsiveness to wheat-specific IgG, IgA of IgE antibody assay and by immunoblotting with sera from patients with atopic dermatitis. **Yokota, S., Kazufumi, T., Shimizu, U., Takahashi, K.** et al. (U. of Yokohama, Japan).

The role of Pityrosporum ovale in atopic dermatitis: a culture and immunological study. **Færgemann, J.** (U. of Gothenburg, Sweden).

Contact sensitivity to Pityrosporon ovale in patients with atopic dermatitis. **Tagami, H., Rokugo, M., Usuba, Y., Tomita, Y.** (U. of Tohoku, Sendai, Japan).

Relationship between mite antigens for type I and type IV allergy in atopic dermatitis. **Sasaki, K., Sugiura, H., Uehara, M., Ishida, T & Horiike, K.** (U. of Shiga, Seta, Japan).

Atopic sensitization to Pityrosporon orbiculare and Trichophyton rubrum in children with atopic eczema. **Lindgren, L., Johansson, S.G.O., Johansson, S., Nordvall, S.L.** et al. (Dept. of Pædiatr. St Göran Hosp., Dept. of Clin. Immun & Dermatology, Karolinska Hosp. Stockholm, Sweden).

Type I allergy to foods in atopic dermatitis: comparison between RAST-positive and RAST-negative cases

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Type I allergy to foods occurs in some patients with atopic dermatitis (AD), but not in others. It is not clear what the factors may be that are related to the development of type I allergy to foods in patients with the disease.

To clarify this problem, specific IgE antibody titers (RAST) to common foods in Japan (milk, eggs, soybean, wheat, and rice) were determined in 165 patients with AD.

Positive RASTs to at least one of the five common foods were observed in approximately 50% of the AD patients examined.

The RAST values did not relate to clinical course of the disease. Patients with severe AD showed higher incidence of positive RASTs than mild cases.

When a comparison was made on the basis of familial background of respiratory atopy, it was found that positive RASTs to foods occurred in many patients with AD who had a personal or family history of respiratory atopy. However, the RASTs were negative in the majority of patients with "pure" AD who had family history of AD but lacked personal and family history of respiratory atopy.

These findings suggest that type I allergy to foods is not directly related to AD. This type of allergy to foods seems to occur predominantly in those patients with AD who have a predisposition to respiratory atopy.

FOOD IMMEDIATE-CONTACT HYPERSENSITIVITY (FICH) AND ELIMINATION DIET IN ATOPIC DERMATITIS. Preliminary results in 107 children.

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Food - and aeroallergens play an important pathogenetic role in atopic dermatitis [AD]. In AD patients ingestion of foods can result in hypersensitivity reactions. However, AD may also be worsened by direct skin contact with foods. Food proteins easily penetrate the skin. Immediate contact reactions (FICH) are elicited within 30 minutes. A skin provocation test (SAFT= skin application food test) was developed. In this system, foods are patched to the skin covered by gauzes. We present preliminary results of a study after the role of FICH in AD. From sept 1988 - 31 dec 1990, we studied 91 patients (0-5 yrs) with AD and 16 healthy controls of the same age without skin disease. SAFT on milk, egg, peanut and soy was negative in all controls. Based on weighted history, medical examination and by skin provocation, subgroups could be identified: with (n=61) and without (n=30) FICH. In these 61 patients with FICH, positive SAFTs to one or more foods were observed. We found a significant correlation between SAFT - and specific RAST scores in patients with FICH (Spearman rank correlation coefficient, r_s=0.56, p< 0,001). Total IgE was significantly higher in the group with FICH. In 20 of the 61 positive patients (30%), a flare-up in AD during or short after SAFT testing was noted. After introduction of an elimination diet, AD improved in 14 out 23 patients within 4 months, as measured by a simple scoringsystem. However, other influences like local treatment and climate-changes could not be neglected. In 9 patients, the response to elimination of foods was impressive, by complete clearing of AD or by no need for local therapy.

Immediate contact reaction to foods (FICH) is common and an important clue to food allergy with dominant skin symptoms as AD and urticaria. SAFT is an easy way to imitate FICH in AD patients, younger than 5 yrs. Besides SAFT is child-friendly and safe, even in small infants.

Role of environmental pollution in the development of atopic diseases.

J. Ring[1], B. Kunz[2], D. Vieluf[1], A. Gries[3], H. Römmel, B. Przybilla[2] and K. Überla

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In order to evaluate the putative role of air pollutants as adjuvant factors for the development of atopic diseases, an epidermiologic pilot study was performed in 1083 preschool children in several districts in Bavaria selected according to different degrees of air pollution. The personal history regarding atopic diseases and other allergic reactions was obtained by mailed questionaires. These were reviewed together with the parents on the occasion of the children's examination that included dermatological evaluation, a modified skin prick test with six aero- and food allergens, and a ready-for-use patch test (thin layer rapid use epicutaneous =TRUE test) comprising 23 standard contact allergens. Indoor and outdoor air consentrations of SO_2 and NO_x were measured. The study was performed in the year 1988 and 1989. A personal history concerning atopic diseases was reported in 22,8% (astma 4,6%, rhino-conjunctivitis 11,8%, atopic eczema/cradle cap 18,2%). Actual eczematous skin lesions were diagnosed by dermatological evaluation in 10,3% of the children. Positive skin prick test reactions revealed a rate of sensitization of 35,7% reactions to at least one allergen, mostly to pollen (21,7%) indoor allergens cat and housedust mite (19,2%) and food allergens (9,1). In the TRUE test, positive patch test reactions were found in 15,8%, most frequently against merthiolate (8,8%) and nickel sulfate (7,1%). This epidemiologic pilot study shows an unexpectedly high prevalence of allergic diseases and sensitization rates in children in Bavaria. The indoor air concentrations of SO_2 and NO_x differed according to the years of the study: They were unexpectedly low in 1988: Median SO_2 1,3 ug/m^3;NO_x 1,4 ug/m^3 compared to 1989: SO_2 4,9 ug/m^3, NO_x 6,7 ug/m^3. The indoor SO_2 air concentrations showed a clear-cut dependence on outdoor NO_x levels in 1988, but less in 1989. The indoor air SO_2 concentration were significantly dependent on the intensity of smoking in the household (number of smokers and cigarettes smoked per day). Indoor air NO_x levels were found to depend clearly on cigarettes consumption in the household and the use of gasfired cooking stoves. They also were increased in upper floor dwellings. In a multivariate analysis no significant correlation between indoor air SO_2 and NO_x exposure and the prevalence of atopic diseases was found. Maternal smoking during pregnancy was connected with significaltly higher cumulative prevalence rates of atopic diseases in the children. The most striking differences with regard to the prevalence of atopic diseases were found between different sites of residence. There was no sex dependence. In a comparison between different study regions with high, medium and low air pollution there was a striking higher incidence of atopic eczema (17%) in high polluted areas compared to areas with low air pollution in 1989, which was statistically significant at a descriptive level. The fact that no significant correlation overall was observed might be partly due to the rather low SO_2/NO_x concentrations during the investigation period, especially during the year 1988. Future epidermiologic studies in larger population samples, involving other possible pollutants and using longitudinal study designs should be performed to further investigate the interrelationship between environmental pollution and the development of atopic diseases.

Contact sensitivity to Pityrosporum ovale in patients with atopic dermatitis

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The cause of atopic dermatitis (AD) is unclear, but from the clinical and histopathologic resemblance to allergic contact dermatitis, as well as the nature of the cellular-infiltrate seen in the skin lesions of AD, it is suspected that inflammatory changes based on cell-mediated immunity may be involved in the pathogenesis of the skin lesions. The morphology and distribution of the skin lesions change with age. However, seborrheic area,i.e. scalp and face, are involved in most patients. Suspecting a role played by regional microorganisms in the formation of these lesions, we studied contact sensitivity and immediate hypersensitivity to extracts from Pityrosporum ovale. In a chamber-scarification patch test, 75(64%) of 118 patients with AD responded positively, compared with one(3%) of 35 healthy volunteers. However, no contact sensitivity was detected against propionibacterium ances, another normal flora of the seborrheic skin region. No significant statistical correlations were found between contact sensitivity to P. ovale in patients with AD and any of the following factors:age, sex, distribution of skin lesions, presence of pruriginous papules, history of infantile seborrheic dermatitis, or concomitance of other atopic diseases. Lymphocyte transformation test with P. ovale antigen confirmed that those with positive patch test reactions showed significantly high stimulation indexes.

The antigenic substances divided by gel filtration High-Performance liquid chromatography were found in a fraction of components with molecular weights above 60 KD. In addition, 25 (71%) of 35 patients with AD showed a positive immediate response to P. ovale extract in a prick test, whereas none of 11 healthy volunteers showed any response. Although the incidence of the positive immediate responses was similar to that in contact sensitivity, there was no clear correlation between the delayed and immediate hypersensitivity reactions. Based on these results, we think that P. ovale may play a role in the exacerbation of the skin lesions of AD. Now the study on the relationship between colonization of P. ovale and the skin condition of atopic dermatitis is under way.

THE ROLE OF PITYROSPORUM OVALE IN ATOPIC DERMATITIS: A CULTURE AND IMMUNOLOGICAL STUDY

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Pityrosporum ovale is a lipophilic yeast commonly present in the seborrheic areas of the skin of adults. It has been suggested that hypersensibility to P.ovale is a pathogenic factor in atopic patients with lesions in seborrheic areas such as scalp, face, neck and chest (head-neck dermatitis). In a controlled study 55 young adult patients with atopic dermatitis had IgE-antibodies against P.ovale in 65%; most frequently in patients with lesions predominantly in seborrheic areas (79%). In another comparative controlled study 60 children (7 m - 21 y) with atopic dermatitis, 40 children (2 - 20 y) with rhinoconjunctivitis and/or asthma and 40 healthy children (1.5 - 21 y) were studied with cultures for P.ovale, P.ovale skin prick test (SPT) and specific RAST. The result of P.ovale cultures did not differ significantly between the three groups. P.ovale culture was positive in 5-15% in 0-10 y and in 65-90% in 11-21 y old children. However, both positive SPT and positive RAST were found in a much higher frequency in the older patients with atopic dermatitis than in the other groups. There was a correlation between culture positivity for P.ovale, positive SPT and positive RAST. These data support earlier findings that P.ovale should be considered as a probably pathogenic factor particularly in older children and adults.

Treatment (author)
Nizoral® shampoo (2x/week - 1x/week)
Miconazol
Oral ketoconazol

Relationship between mite antigens for type I and type IV allergy in atopic dermatitis

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Although both type I allergy and type IV allergy to house dust mites often occur in patients with atopic dermatitis (AD), it is not clear whether house dust mite antigen(s) for type I allergy and those for type IV allergy are identical or not. To clarify this problem, we performed scratch tests and lymphocyte transformation tests (LTTs) with fractionated mite antigens in patients with AD.

Using high-speed gel filtration chromatography, a crude extract from *Dermatophagoides farinae* was divided into four fractions. Scratch tests and LTTs to the crude mite extract and each fraction were performed in 37 patients with AD.

The crude mite antigen extract provoked positive scratch tests in 25 (68%), and positive LTTs in 19 (51%) of the 37 patients with AD. There were 65 positive LTT reactions of which 25 accompanied positive scratch test to the antigen fraction that provoked the positive LTT reaction, but 40 did not. These findings indicate that house dust mite antigens for type IV allergy are different from those for type I allergy in a considerable number of patients with AD.

Fraction I - IV
F III probably = P1 (most antigenic fraction)

Atopic sensitization to Pityrosporum orbiculare (P.o.) and Trichophyton rubrum (T.r.) in Children with Atopic Eczema.

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One-hundred-nineteen children (74 girls) aged 4-15 years with atopic eczema, consecutive cases from the pediatric clinic of the K.H. were included. Structured interviews, clinical investigations, skin prick tests with a panel of common inhalation allergens (Phazet) and a P.o. extract (ALK) were performed. Serum was assayed for IgE antibodies to P.o. and common inhalation allergens using CAP, to T.r. and Staphylococcus aureus (S.a.) with RAST.

Results: Twenty-five children (21%) had serum IgE antibodies to P.o., 12 (13%) to T.r. and 2 to S.a. The P.o. CAP-positive children's eczema was worse than the P.o. negative children's. Severe itching was more common ($p<0.01$), scoring according to Zachary and McDonald was higher totally ($p<0.01$) and in the head-neck-face region ($p<0.01$) and they tended to have a more chronic course. The P.o. CAP positive children also exhibited higher IgE antibody levels to other allergens and they were to a higher extent SPT-positive than those who were P.o. CAP negative.

Conclusion: There was a relationship between the severity of eczema and occurrence of IgE antibodies to fungi. However, the relative importance of this kind of allergy in atopic dermatitis remains to be determined.

Tuesday.

Afternoon session.

Effects of ultraviolet irradiation on epidermal cellspossible mechanism of action in atopic eczema. **Ruzicka, T. & Kemeny, L.** (U. of Munich, Germany).

Are disturbances of w-6-fatty acid metabolism involved in the pathogenesis of atopy? **Melnik, B., Plewig, G.** (U. of Düsseldorf, Germany).

Abnormalities of cutaneous microcirculation in atopic eczematics. **Hornstein, O.** (U. of Erlangen, Germany).

Neuropeptides and atopic dermatitis. **Giannetti, A., Pincelli, C., Fantini, F.**(U. of Modena, Italy).

Abnormal cutaneous neurosensitivity in atopic skin. **Heyer, G., Hornstein, O.P., Handwerker, H.O.** (U. of Erlangen, Germany).

Frequency of allergic contact eczema in adult patients with atopic dermatitis. **Lever, R., Forsyth, A.** (Western Infirmary, Glasgow, England).

Effects of ultraviolet irradiation on epidermal cells - possible mechanism of action in atopic eczema?

Thomas Ruzicka, Lajos Kemény
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Inflammatory mediators are believed to play an important role in the pathophysiology of atopic eczema. Among them, eicosanoids derived from arachidonic acid via the lipoxygenase pathway have attracted particular interest due to their biological effects in skin and immune system, and their high concentrations in inflamed tissue. The 12-lipoxygenase product 12-hydroxyeicosatetraenoic acid (12-HETE) is the main eicosanoid formed in normal skin; increased concentrations have been identified in psoriasis and atopic eczema. We recently described high-affinity binding sites for 12-HETE on human epidermal cells. Since UV irradiation exerts profound effects in skin and is used in therapy of inflammatory dermatoses, it was deemed necessary to investigate the effects of UVB on epidermal 12-HETE receptors. UVB iduced a massive dose-dependent decrease of 12-HETE binding in the human epidermal cell line SCL-II. The inhibition occurred after a lag period of 6 hours. Repeated low dose irradiation had similar effects to single high dose irradiation. Decreased 12-HETE binding was due to a reduction in the number of the binding sites, rather than a change in receptor affinity. The UVB-induced modulation of epidermal 12-HETE receptors may contribute to the therapeutic effects of UV in inflammatory skin diseases, but also to its harmful long-term effects.

Are disturbances of w-6-fatty acid metabolism involved in the pathogenesis of atopy?

Melnik, B. & Plewig, G.
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Essential fatty acid deficiency in experimental animals leads to a scaly dermatitis with a defective epidermal permeability barrier, alterations in cell-mediated immunity with reduced delayed type hypersensitivity, exaggerated polyclonal immunoglobulin synthesis, and disturbances in thymus development.
Increased levels of linoleic acid and deficiencies of 6-desaturated w-6-fatty acids have been observed in plasma phospholipids of patients with atopic dermatitis (AD), in umbilical cord plasma lecithin of newborn infants with increased cord blood IgE levels, in cord blood T-lymphocytes of "atopy-at-risk" newborn infants, in atopic monocytes, in adipose tissue lipids of patients with AD, and in breast milk of mothers of infants with AD. Reduced release of arachidonic acid has been measured in atopic monocytes and atopic platelets. Diminished formation of prostaglandin E_2 (PGE_2) has been observed in atopic monocytes under stimulated and unstimulated conditions and in inflamed and non-inflamed atopic epidermis.
Pène et al. recently showed that PGE_2 (10^{-6}M, 10^{-7}M) was able to suppress interleukin-4-induced IgE synthesis of human non-atopic mononuclear cells in vitro. We could demonstrate that PGE_1 and PGE_2 (10^{-6}M, 10^{-5}M) had an suppressive effect on in vitro IgE synthesis of mononuclear cells of patients with AD and respiratory allergies. These findings indicate that E-type prostaglandins are involved in the regulation of IgE synthesis.
Intriguingly, the T-cell differentiating effect of thymus hormones is associated with the release of PGE. There is a close relation between arachidonic acid metabolism and the development of thymocytes in fetal thymic organ cultures. Inhibition of fatty acid cyclooxigenase results in diminished differentiation of Lyt-2 T cells. From a clone of L1210 mouse leukemia cells it is known that fatty acid cyclooxigenase activity is important for the antiviral activity of interferon.
Thus, it is tempting to speculate that disturbances of w-6-fatty acid and cyclooxigenase metabolism might be the underlying basic defect leading to 1) a diminished efficacy of thymus hormones in T cell maturation of atopic subjects, 2) impaired PGE- and interferon-mediated regulation of IgE synthesis, and 3) reduced interferon-mediated antiviral activity with increased susceptibility for viral infections.

Abnormalities of cutaneous microcirculation in atopic eczematics.

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There are several signs of abnormal cutaneous microcirculation in atopics, i.e. pseudoanaemic pallor and white dermographism, yet reliable methods of non-invasive measurement of cutaneous microcirculation are almost lacking so far. Since the phenomenon of dermographism (D) elicited by blunt stroking the skin does reflect the functional response of cutaneous vessels to pressure, we studied the haemodynamics of D by aid of laser-doppler-microfluxmetry (LDF) and infrared-thermography (IR-TH) in patients with atopic eczema (n = 23) and in age and sex-matched healthy controls (n = 21) under standardized investigative conditions. Only inpatients without corticoid therapy exhibiting dry or lichenified skin inflammation (lumbal area) were selected. After elicitation of D, all measurements were continuously recorded over 20 min.

The basic values of LDF showed a significant reduction in the intensity of hyperaemia in the patients as compared to the controls, depending on the visual degree of the dermographic blanching effect (white, delayed white, indifferent, pale-red). Patients with white or indifferent D had the lowermost rises of blood flux, those with delayed white or pale-red D revealed more increased blood fluxes, yet remained below the mean levels of normal red D (controls). By IR-TH a significant diminution of both the rise and plateau phase of the radiating temperature as compared to the controls was measured.

The results yield clear evidence that white D (including different subtypes of dermographic pallor) typical of atopic eczematics is depending on the degree of local vasoconstriction, possibly combined with altered blood flow in cutaneous shunt vessels.

NEUROPEPTIDES AND ATOPIC DERMATITIS.

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Atopic dermatitis (AD) is known to be exacerbated by psychic stress, scratching and sweating. This suggests a possible involvement of a neurogenic component in the pathogenesis of the disease. Reduced flare and wheal reactions to intradermal injections of several neuropeptides (NP) have been observed in AD, while marked changes in the expression of certain NP have been found by immunohistochemistry in skin of patients with AD. Vasoactive intestinal polypeptide (VIP) and substance P (SP) have been detected by immunohistochemistry around blood vessels and sweat glands in human skin. They are involved in vasodilation, mast cell degranulation and immunomodulation. We evaluated by radioimmunoassay VIP and SP levels in whole skin homogenates of chronic lesional skin from AD patients. VIP was found in significantly increased amounts in lesional skin of AD patients (5.62 ± 1.25 pmol/g tissue) as compared to control skin (0.43 ± 0.08 pmol/g tissue). By contrast, SP levels were significantly lower in lesional AD skin (0.25 ± 0.03 pmol/g tissue) than in control skin (0.97 ± 0.24 pmol/g tissue). The changes in neuropeptide cutaneous levels would confirm an involvement of the peripheral nervous system in the pathogenesis of AD. In particular, VIP and SP could be operating as antagonists in the mechanisms associated with chronic lesions of AD.

ABNORMAL CUTANEOUS NEUROSENSITIVITY IN ATOPIC SKIN

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After having found an inability of atopic dermatitis (AD) patients to distinguish different levels of iontophoretically applied histamine concentrations as shown by their diminished vascular reactions and itch responses, we conducted a further study on skin reactions and on sensations of itch and burning pain after intradermal injection of Substance P(SP) and topical application of mustard oil (MU) in 20 AD patients and 20 healthy controls. Changes in skin blood flow were measured with a Laser Doppler flowmeter. Areas of wheal and flare reactions were planimetrically evaluated. Simultaneously to Laser Doppler flowmeter measurements, subjective itch and burning pain ratings were verbally reported on a category partitioning scale at 10 sec intervals. Substance P evoked dose-dependent wheal, flare and itch reactions in patients and controls. However, SP doses of 10^{-9} - 10^{-11} mol elicited smaller flares in patients than in the controls whereas the wheal sizes were similar in both groups. SP induced itch ratings were lower in patients at a dose of 10^{-10} mol, and the onset of itching was delayed at all SP levels applied. Mustard oil elicited similar neurogenic inflammatory reactions in both groups, although pain sensations were significantly delayed in AD patients at two MU concentrations. In summary, our new findings confirm the hypothesis of our former investigation, that the functions of unmyelinated afferent skin nerve fibers are affected by the pathophysiological mechanism of AD.

FREQUENCY OF ALLERGIC CONTACT ECZEMA IN ADULT PATIENTS WITH ATOPIC DERMATITIS

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65 adult patients (25 male, 40 female) with atopic dermatitis were studied. All had clinical features typical of atopic dermatitis. 55 (85%) had developed the disease before the age of 5, 57 (88%) had flexural involvement in the past. 53 (82%) had co-existent respiratory disease and 34 (52%) had a positive family history of atopy. Specific IgE levels were tested in 55 patients: 34 (62%) had high levels to the house dust mite, 8 patients (14.5%) had negative results.

Routine patch testing was carried out in 51 patients. 13 patients are awaiting testing. 31 patients (61% of those tested) showed a positive allergic reaction which was thought to be clinically relevant. In 16 patients a single allergen was identified while 15 patients reacted to two or more allergens: a total of 50 positive reactions. The commonest allergens indentified were fragrances - 19 positive reactions, nickel (8), rubber (4), lanolin (4), neomycin (2) and colophony (2). 11 other allergens were each identified on a single occasion.

Patients with atopic dermatitis are said to develop contact allergy less readily than normal subjects (Forsbeck, Hovmark and Skog 1976). However in this study, 31 patients of an unselected group of adult patients with atopic dermatitis showed one or more positive patch test reactions. This has important implications in the management of the disease. Fragrances, the commonest allergen identified is found in prescribed bath oils, in many toiletries and is contained in both washing powders and fabric conditioners. Rubber and nickel are also common in the enviroment. Appropriate avoidance advice can be helpful in this group of patients.

Reference: Forsbeck M, Hovmark A and Skog E 1976
Patch Testing, Tuberculin Testing and Sensitilization with Dinitrochlorobenzene and Nitrosodimethylanilini of Patients with Atopic Dermatitis
Acta Dermatovener (Stockholm) **56**: 135-138, 1976

Tuesday, May 28, 1991

Morning session.

IgE receptor expression on Langerhans cells in atopic eczema. **Bieber, T.** (U. of Munich, Germany).

The role of Fce RII/CD 23 positive lymphocytes in the pathogenesis of atopic dermatitis. **Takigawa, M., Sakamoto, T., Tamamori, T. & Nakayama, F.** U. of Hamamatsu, Japan).

Role of cytokines for diagnosis and monitoring of atopic dermatitis. **Kapp, A.** U. of Freiburg, Germany).

Serine proteinas from Staph. aureus are potent inducers of cytokines in monocytes, relevance for immune stimulation in atopic dermatitis. **Thestrup-Pedersen, K., Kristensen, M., Baran, K., Deleuran, B.** et.al. (U. of Århus, Denmark).

The expression and excretion of cytokines from purified monocytes and lymphocytes from patients with atopic dermatitis. **Thestrup-Pedersen, K., Schade Larsen, C., Zochariae, C., Deleuran, B.** et.al. (U. of Århus, Denmark).

The role of histamine and cytokines in the pathogenesis of itch in atopic dermatitis. **Wahlgren, C.F., Hägermark, Ö.** (Karolinska Hosp. Stockholm, Sweden).

Positive antinuclear antibody in severe atopic dermatitis. **Taniguchi, Y., Yamakami, A., Sakamoto, T, Nakamura, Y.** et al. (U. of Mie, Tsu, Japan).

Study of circulating immune complexes in atopic dermatitis. **Schneider, I., Telegdy, E.** (U. of Pècs, Hungary).

Atopic dermatitis and bronchial hyperreactivity. **Fabrizi, G. & Corbo, G.M.** (Catholic U., Roma, Italy).

Mast cell invasion of peripheral nerve in skin lesions of atopic dermatitis. **Sugiura, H., Maeda, T. & Uehara, M.** (U. of Shiga, Seta, Japan).

IGE RECEPTOR EXPRESSION ON LANGERHANS CELLS

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Although it is not clear whether atopic disease may be correlated to an imbalance of the cytokine network involved in IgE-synthesis and IgE-mediated reactions, several aspects suggest some links between the latters and atopic dermatitis (AD), although as yet, one may only speculate about such phenomenons. However, several findings draw attention to distinct IgE-bearing cutaneous dendritic cells, eg. epidermal Langerhans cells (LC) and dermal dendritic cells which may represent the missing chain stitch.

Recent findings in this topic may be summarized as follows: (a) IgE-bearing LC are found in involved as well as in uninvolved skin of patients with AD with an elevated IgE-level but not in normally looking skin from atopic patients with rhinitis or asthma bronchiale; (b) Topical steroids decrease the amount of IgE-bearing LC in the skin; (c) IgE-bearing LC are not specific for AD, but are found in various other common skin diseases like psoriasis, mycosis fungoides or lupus erythematosus providing that they have an elevated IgE-level. This strongly indicates that the capacity of expressing IgE-receptor(s) is not intrinsec to LC of patients with AD; (d) the most recent findings indicate that *normal human LC* are able to bind IgE-molecules. Indeed, very recently, we could demonstrate that human LC express at least 3 distinct IgE-binding structures: (1) the low affinity receptor for IgE FcεR2/CD23, (2) the soluble endogen lectin named "IgE-binding protein" (εBP) and (3) a third, yet-to-be-defined molecule which binds IgE with most efficiency on normal LC. Data about these 3 structures will presented and discussed in more details.

THE ROLE OF FcεRII/CD23 POSITIVE LYMPHOCYTES IN THE PATHOGENESIS OF ATOPIC DERMATITIS.

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Patients with atopic dermatitis(AD) show a variety of humoral and cell-mediated immune dysfunctions and infiltration of activated T cells and IgE-bearing antigen-presenting cells in the skin lesion. Thus, defects of the IgE-related immune system seem to play a role in the formation of skin lesions in AD. With the use of a monoclonal antibody to human lymphocyte FcεRII, we have tried to elucidate functional roles of FcεRII (+) cells in AD. The results we have obtained are as follows.

1. Patients with extensive AD had higher frequencies of FcεRII(+) lymphocytes in the peripheral blood than patients with mild AD and eczematous dermatitis(ED), and normal individuals. In severe and moderate AD about 10% of FcεRII(+) lymphocytes were T cells(Tε cells) that preferentially expressed CD8, and the remainder B cells.
2. In both acute and chronic AD lesions two to four percent of infiltrating mononuclear cells expressed FcεRII and half of these cells were Tε cells. CD8(+) Tε cells infiltrated preferentially acute lesions, whereas chronic lesions contained either CD8(+) or CD4(+) Tε cells, or both. FcεRII(+) cells were rarely present in ED lesions.
3. Following in vitro stimulation of peripheral blood cells with IL-4, comparable proportions of Tε cells were detected in AD, ED and normal individual groups. Higher proportions of CD8(+) Tε cells were induced in atopics compared with nonatopics in IL-4-induced Tε cell populations. Interferon(IFN)-γ suppressed the induction of Tε cells by IL-4 in all groups.

Based on these results we hypothesize that part of Tε cells is generated at lesional skin as a result of cutaneous atopic inflammation in which infiltrating T cells produce IL-4, but not IFN-γ. Disregulation in cytokine production results in the preferential appearance of CD8(+) Tε cells that may adversely affect skin inflammation in AD.

Role of cytokines for diagnosis and monitoring of atopic dermatitis

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Atopic dermatitis (AD) is characterized by a variety of cellular dysfunctions of immune cells, particularly in the T cell compartment. There is increasing evidence that these alterations may be associated with imbalances within the cytokine network. Accordingly, significant changes were found investigating the production of cytokines by peripheral blood mononuclear cells in AD. Alterations of cytokine production were observed in correlation to the severity of the disease showing a characteristic pattern. Due to a diminished production of the monocyte-derived cytokines IL-1 and TNFα, in contrast to the "normal" production of the T-cell products interferon-γ and TNFβ, a decreased capacity of monocytes to release immuno-modulating cytokines may be assumed for AD patients. This dysregulation may be relatively specific, since there are no signs of an altered production of other monocyte-derived cytokines, such as interferon-α or IL-6. However, patients were found to have an impaired capacity of their T cells to release IL-2 in vitro. Moreover, decreased IL-2 production in AD was significantly correlated with the eczematous involvement of patient's skin. In contrast, sera of AD patients contained significantly increased IL-2 receptor (IL-2R) levels as a sign of T cell activation. Furthermore, IL-2R levels in AD patients showed a significant correlation with IgE levels and body surface involvement.

One possible explanation for these changes would be that the inflammatory process in AD is focused on the skin. Accordingly, the decreased production of cytokines by blood mononuclear cells may be due to a down-regulation of the immune response in the peripheral blood induced by cytokines released from hyperactivated immune-cells in the inflamed skin. These suggestions are supported by the finding that alterations of distinct T cell functions normalized with clinical remissions. Recent reports indicate that contact of skin with inhalant allergens may induce exacerbation of AD. This may be due to an allergen-specific process mediated by Langerhans cells expressing Fc-receptors for specific IgE. Activation of Langerhans cells, associated with release of IL-1, results in activation of an atopy-specific T-helper lymphocyte subset which in turn release IL-4, IL-5 and other growth factors. IL-5 is capable of stimulating eosinophil proliferation and function, particularly in AD. Moreover, eosinophils were reported to be important effector cells for propagation of the local inflammatory reponse in AD. IL-4 mediates two major effects which may be of importance for the pathogenesis of AD: IL-4 is able to induce the low affinity receptor for IgE on Langerhans cells, and IL-4 regulates IgE synthesis, particularly, by influencing the switch of IgM to IgE/IgG_1. Therefore, induction of a local immune response, associated with the release of immuno-modulating cytokines, may result in a systemic activation of their target cells. Moreover, during chronification of the disease it is absolutely possible that an antigen-specific immune response in AD will change to an antigen-independent and self perpetuating inflammatory process which is triggered by a number of different factors.

Nevertheless, characterization of cytokine production will allow a better understanding of the pathophysiology of AD. Moreover, measurement of these parameters during follow up-studies in patients during therapy could facilitate the evaluation of therapeutic effects.

SERINE PROTEINASE FROM STAPHYLOCOCCUS AUREUS ARE POTENT INDUCERS OF CYTOKINES IN MONOCYTES, RELEVANCE FOR IMMUNE STIMULATION IN ATOPIC DERMATITIS.

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Patients with atopic dermatitis have colonization of their skin with Staph. aureus, and clinical relapses are followed by an increased number of Staph. aureus often needing antibiotic therapy for regression of the disease. Staph. aureus carries receptors for both fibronectin and laminin, and they can also bind strongly to Langerhans cells.

Staph. aureus can release toxins and enzymes including serine proteinase. It has recently been shown that serine proteinase can split a strongly neutrophil chemotactic peptide from its inhibitor alfa-1-antitrypsin. We wanted to see, if serine proteinase can augment other immune functions. We observed in 16 adult patients with severe atopic dermatitis that serine proteinase can stimulate monocytes to release interleukin 1 and 8 to a similar degree as seen in 10 control persons. The release was comparable to the amount seen following stimulation with lipopolysaccharide.

Serine proteinase could then act as an antigen-independent mitogen or as a co-factor in lowering the threshold for an antigen-dependent stimulation in the skin of patients with atopic dermatitis. This is supported by the clinical finding that it is important to treat skin infections in atopic eczema.

THE EXPRESSION AND EXCRETION OF CYTOKINES FROM PURIFIED MONOCYTES AND LYMPHOCYTES FROM PATIENTS WITH SEVERE ATOPIC DERMATITIS

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We have estimated the release of cytokines from mononuclear blood cells in adult patients with severe atopic dermatitis. Monocytes were purified using plastic adherence for the IL-1 assays and stimulated with LPS 0.5 mcg/ml for 24 hours in RPMI 1640 with 1% FCS. Supernatants were assayed for IL-1 activity using both the C3H mouse thymocyte assay and an ELISA for IL-1beta. The cells were fixed in GTC buffer and mRNA extracted for dot blot analysis of IL-8 expression. We confirmed previous investigations in our lab that the purified monocyte population from patients with severe AD release significantly larger amounts of IL-1 as estimated in both IL-1 assays.

We also stimulated the mononuclear cells with PHA 1 mcg/ml in order to study the release of IL-6 and IL-8. We found these cytokines were excreted in amounts comparable to the control group. The gamma-interferon release was low.

The amount of soluble interleukin 2 receptors were increased in serum in approx. 60% of the patients. The eosinophilic cation protein ECP was found increased in serum in eight of 11 investigated patients.

We conclude that the interleukin 1 release is increased, when studies are performed on purified monocytes from patients with severe AD. There is probably a reduced production of interferon-gamma, whereas excretion of IL-6 and IL-8 was wihthin normal limits. Mediators from T lymphocytes and eosinophils showed a cellular activation of these cell types. The findings support that the immune system is activated in many ways in AD.

THE ROLE OF HISTAMINE AND CYTOKINES IN THE PATHOGENESIS OF ITCH IN ATOPIC DERMATITIS

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In order to elucidate the pathogenesis of itch in atopic dermatitis (AD), a new computerized method for the recording of clinical itch was used for the evaluation of antipruritic effect of oral antihistamines and cyclosporin A (CSA).

In a double-blind, randomized, cross-over study in 25 adults the antipruritic effect of 3 days' treatment with the non-sedative H_1 antagonist terfenadine (60 mg b.i.d.) or the sedative H_1 antagonist clemastine (2 mg b.i.d.) did not differ from that observed with placebo. Both terfenadine and clemastine significantly reduced experimental histamine-induced flare and itch, indicating that sufficient concentrations of the antihistamines were present in the skin.

In another double-blind, placebo-controlled, cross-over study in 10 adults 10 days of oral treatment with CSA (5 mg/kg/day) significantly reduced the itch intensity in 9 and eczema scoring in all 10 patients. The onset of the antipruritic effect differed, but 6 subjects had an effect already within 2-4 days. A significant decrease in the total number of blood eosinophiles was seen. In lesional skin, CSA induced a relative decrease of $CD3^+$ T cells in 5/10 patients, of HLA-DR^+ cells in 6/10, and of interleukin-2-receptor $(CD25)^+$ cells in 4/10, but these changes did not seem necessary for itch relief. Relapse of clinical symptoms was seen within 2-30 days after the completion of the CSA therapy. The mechanism of the antipruritic action of CSA is unclear, as CSA may have widespread pharmacological effects. However, since it is known that human interleukin-2 therapy provokes itch as a side-effect, and that CSA inhibits the production of cytokines, the existence of 'pruritic cytokines' is suggested.

In conclusion, histamine does not seem to be of major importance in the pathogenesis of itch in AD, but hypothetically, 'pruritogenic cytokines' may play a role in the mechanism of itch in this skin disease.

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Positive antinuclear antibody in severe atopic dermatitis

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We often see facial lesions on atopic dermatitis (A.D.) and sunlight is known to aggravate A.D. [1]. However, both natural and artificial irradiation have been used in the treatment of A.D.. Since we recently have seen several A.D. patients who had high titer of antinuclear antibody (A.N.A.), we studied A.N.A. in adolescent and adult cases of A.D.. We chose patients with long-standing recalcitrant dermatitis and atopic diathesis who were more than 15 years old and visited the University hospital and the Yokkaichi city hospital. Serum samples taken from the A.D. patients were examined with 2 HEp-2 cell-A.N.A.-detecting kits which included anti-human IgG, IgA, IgM FITC conjugate (DAKO) [method 1] and anti-human IgG FITC conjugate (Hoechst) [method 2] respectively as the secondary antibody. In method 1, patients who had the titer of more than 1:40 were observed in 34.0% of 53 patients. In method 2, the positive titer of more than 1:40 were seen in 25.5% of 47 patients. In severe cases of A.D. who needed hospitalization, 4 out of 11 patients had the titer of more than 1:320 with homogenious type (36.3%). Among the A.D. patients with marked facial lesion, 15 out of 31 had A.N.A. titer of more than 1:40 (48.4%). On the other hand, 3 out of 22 patients who don't have facial lesion had A.N.A. titer of more than 1:40 (13.6%). Since phototherapy has been often used in the treatment of A.D., it might be better to examine A.N.A. before the phototherapy.

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Study of circulating immune complexes in atopic dermatitis

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The authors examined sera from 85 (75 adults, 10 children) patients with atopic dermatitis (AD) for the presence of circulating immune complexes (CIC). Using PEG-precipitation technique they found a significant increase of CIC total protein. In the quantity of precipitated proteins, significantly elevated IgG and slightly elevated IgA in CIC was measured. Acute and subacute stadium of the disease or skin involvement did not correlated with CIC. Elevated CIC was found in patients, who had AD with associated diseases (recidive infections, recidive conjunctivitis, asthma, allergic rhinitis). Different factors play role in the pathogenesis of AD, in the circulation a main role can play the disorder of the T lymphocytes. These cells together with others (PMNL, eosinophil leukocytes, monocytes, B lymphocytes) with the complement receptors on their surface are able to induce CIC production and keep it in solution. To clear the pathomechanism of AD made the authors the mentioned tests. Later they will examine the immune complexes in the dermis and IgE in CIC.

ATOPIC DERMATITIS AND BRONCHIAL HYPERREACTIVITY.

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Both, atopic dermatitis and bronchial asthma are characterized by hyperreactivity, the former at the cutaneous level and the latter at the level of the bronchial mucosa. The aim of our study was to determine the prevalence of asthmatic symptoms and the principal factors associated with bronchial hyperreactivity (evaluated with methacholine challenge) in a population of subjects with atopic dermatitis. Seventy-eight subjects (38 males and 40 females) with active atopic dermatitis were examined. All of the subjects were subjected to pulmonary function tests and prick tests. Subjects over the age of seven who were able to cooperate were also given methacholine challenges to evaluate bronchospasm. Medical histories were recorded on standardized questionnaire forms and physical exams were carried out according to the criteria of Rajka. Twenty-one subjects presented medical histories positive for bronchial asthma. These subjects differed from the others of the sample in that onset of their cutaneous disease had occurred earlier(11months of age versus 2.6 years; Kruskall Wallis test p=0.008). Methacholine challenges were administered to 57 subjects. Positive responses were observed in 38 patients. Multiple regression analysis was performed in an attempt to identify variables associated with bronchial hyperreactivity. The final model ($R^2=0.48$ F=14.1, p=0.000) shows significant relationship between the dependent variable and 1) positive history of wheezing (Beta=0.37, p=0.0017), 2) low baseline FEF 25-75 (Beta=-0.27, p=0.008), 3) young age (Beta=-0.34, p=0.0008) and positive history of cough (Beta=-0.34, p=0.044).

Mast cell invasion of peripheral nerve in skin lesions of atopic dermatitis.

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Mast cells are often increased in number in the inflammatory cells of skin lesions of atopic dermatitis. In the present study, we tried to see whether or not mast cells invade peripheral nerves in skin lesions of the disease.

A total of 10 biopsy specimens from skin lesions of atopic dermatitis(4 subacute lesions, 3 lichenified lesions, and 3 prurigo lesions) were examined. 1μm-thick semi-thin serial sections and ultrathin stepped sections were prepared from each biopsy specimen.

Mast cell invasion of peripheral nerves were observed in 9 out of the 10 biopsy specimens examined. The mast cells within peripheral nerves often showed degranulation, which accompanied conspicuous edema of the nerve bundle.

The degranulation of mast cells within peripheral nerve bundles and edema of the nerve bundle may play a role in provoking the severe itchiness of atopic dermatitis.

Wednesday, May 29, 1991

Morning session.

Effect of short-term egg exclusion on infantile atopic dermatitis and its relation to egg allergy. A single blind test. **Aoki, T., Kojima, M., Adachi, J & Okano.** (Habikino Hosp. Osaka, Japan).

Mass trial of hypoallergenic rice produced by enzymatic digestion in atopic dermatitis. **Ikezawa, Z.** (U. of Yokohama, Japan). & the Hypoallergenic Rice Shiseido - I Group.

Extreme dietary measures in the management of childhood atopic dermatitis. **David, T.J.** (U. of Manchester, England).

Management of severe atopic dermatitis. **De Prost, Y.** (Hosp. Necker, Paris, France).

The role of PUVA in severe atopic dermatitis in children. **Sheehan, M.** (Hosp. for Sick Children, London, England).

High Dose-UVA radiation-therapy in the treatment of atopic dermatitis. **Krutman, J., Schöpf, E.** (U. of Freiburg, Germany).

Treatment with traditional chinese medicinal plants. **Atherton, D., Sheehan, M.B., Bing Hui Luo.** (Hosp. for Sick Children, London, England).

Use of alternative medicine by patients with atopic dermatitis. **Jensen, P.** (Rikshospitalet, Oslo Norway).

"Wet wraps" for the treatment of acute erythrodermic eczema. **Harper, J.I., Goodyear, H.M., Spowart, K.** (Hosp for Sick Children. London, England).

Self hypnosis - a valuable adjunct in the treatment of atopic dermatitis. **Glover, M.** (Hosp. for Sick Children, London, England).

Oral Becotide - a novel and effective treatment for difficult atopic dermatitis. **Aylett, S.** (Hosp. for Sick Children, London, England).

Treatment of therapy-unresponsive atopic dermatitis with clobetasol propionate and a hydrocolloid occlusive dressing. **Volden, G.** (U. of Trondheim, Norway).

Use of liposome preparations to increase the benefit-risk ratio of glucocorticoid treatment for eczema. **Korting, H.C., Schæfer-Korting, M. & Zienicke, H.** (U. of Munich, Germany).

Allergen-antibody complexes in the treatment of atopic dermatitis: Preliminary results of a double-blind clinical trial. **Leroy, B., Jacquemin, M., Lachapelle, J.-M. & Saint-Remy, J.-M.** (U. Catholique, Louvain, Brussels, Belgium).

Effect of short-term egg exclusion on infantile atopic dermatitis and its relation to egg allergy. A single blind test.

Aoki, T., Kojima, M., Adachi, J. and Okano, M. Department of Dermatology, Habikino Hospital of Osaka Prefecture, Osaka, Japan

Many reports from pediatric fields suggest that occurrence of atopic dermatitis can be suppressed by restriction of eggs, cow's milk and fish from infants and breast-feeding mother at younger age. But the relation of this effect and IgE-allergy is not known. It is also reported that among many foods egg is an especially potent allergen in young infants.

Therefore, we attempted to know the effect of single egg-exclusion on the skin symptom of atopic dermatitis and its relation to egg allergy. All patients under 3 years of age who visited our out-patient clinic during one year from January to December 1988 were entered into the study. They were photographed at the first visit and were asked to maintain the same treatment of foregoing two weeks. Breast-feeding mother and patients were asked to stop taking hen's egg and hen's egg containing food products for two weeks. Change of skin symptom was evaluated as better or not by the same physician two weeks later comparing the photographic slides and skin condition on the second visit. Results were compared between the patients with egg allergy and those without it, which was confirmed by skin test and RAST after the evaluation.

Of 255 cases 42 were not entered into the study, because 26 were already on egg restriction, 9 were fed only on cow's milk, 4 were severe enough to require immediate treatment and in 3 venipuncture was not successful. In addition, 8 did not visit again, 14 did not exclude eggs as indicated, 27 excluded not only eggs but also other foods as cow's milk or soybean, 12 suffered from acute infectious diseases, 8 changed the previous treatment and evaluation of skin symptom were not recorded in 6. Thus totally 117 cases were excluded from the study.

Analysis was made on remaining 138 cases. In infants under one year of age, 19 of 31 egg allergic patients were better while only 8 of 27 nonallergic patients were better. This was statistically significant at 5 % risks. In infants of 2 years (46 cases of whom 12 were allergic) and 3 years of age (34 cases of whom 8 were allergic) only 9 and 6 respectively were better and these were not related to egg allergy.

It seems probable that single egg exclusion is beneficial to atopic infants with egg allergy under one year of age.

"Mass trial of Hypoallergenic rice (HRS-1) produced by enzymatic digestion in atopic dermatitis"

Zenro Ikezawa1) and HRS-1 Research Group2)
1) Dep of Dermatol Yokohama City Uni. School of Medicine, Yokohama, Japan.
2) A study group, which evaluates clinical effect of HRS-1(Hypollergenic Rice Shiseido-1)on atopic dermatitis in Japan.

Hypoallergenic rice (HRS-1), which was produced by treatment of rice with a proteolytic enzyme, showed 45% reduction of nitrogen content and almost disappearance of 16 and 25KD bands corresponded to the globulin fractions extracted with 1M NaCl. The HRS-1 was negative in RAST for the most sera taken from the patients of atopic dermatitis (AD) with a positive in the RAST of regular rice. Then, usefulness of this HRS-1 was clinically evaluated in 43 patients with severe AD, who were suspected rice allergy, in collaboration with 13 hospitals. The patients were fed with HRS-1 instead of eliminating both regular rice and wheat from their daily foods. AD area and severity index (ADASI) was calculated as an indicator of degree of the cutaneous symptoms. Significant decrease of ADASI was observed at 2nd and 4th week readings and at end of the study (5.6 weeks on average). At final evaluation 74% of the patients tested showed "remarkable" to "moderate" improvement, and in 53% of the patients HRS-1 resulted in "remarkable" to "moderate" reduction of the dosage and potency of the steroid ointment concomitantly used for the treatment. Finally, HRS-1 was evaluated as "very useful" in 70% of the cases.

EXTREME DIETARY MEASURES IN THE MANAGEMENT OF CHILDHOOD ATOPIC DERMATITIS

T.J.David, University Department of Child Health, Booth Hall Children's Hospital, Manchester M9 2AA, England

Although there is good evidence implicating food intolerance in some children with atopic dermatitis, there is a lack of reliable tests to predict response to dietary elimination. The result is a number of empirical elimination diets, but there is a lack of information about the outcome of various types of diet.

Six food diet

63 children with severe atopic dermatitis, aged 0.4 to 14.8 years, were treated with a diet eliminating all but 6 foods for a 6-week period. Nine (14%) abandoned the diet before 6 weeks had elapsed. Twenty-one (33%) completed the diet but did not benefit. Thirty-three (52%) patients obtained 20% or greater improvement in the disease severity score at 6 weeks, and in these patients foods were reintroduced singly at weekly intervals. The outcome at 12 months was the same for the group who responded to the diet, the group who failed to respond, and the group who failed to comply, because of the tendency for dermatitis to markedly improve in all three groups. Although dietary elimination of this type may be associated with immediate improvement, the long term outcome appears to be unaffected by dietary success or failure.

Elemental diet and other allergen avoidance measures

37 children with severe refractory widespread atopic dermatitis were submitted to an antigen avoidance regimen comprising hospitalisation, exclusive feeding with an elemental formula (Tolerex Standard) for a median duration of 30 days, and measures to reduce exposure to pet and dust mite antigens at home. Food challenges were performed at intervals of 7 days, and the patients followed up for at least 12 months. 40/185 (22%) food challenges in hospital were positive, and 28/40 (70%) were delayed reactions only detectable 1 to 7 days after a food was introduced. In the year after discharge, 205/853 (24%) food challenges were positive, and 19/37 (51%) patients had allergic reactions to pets, house dust or grass. 10/37 (27%) either failed to respond to the regimen or relapsed within 12 months. Improvement in the dermatitis was seen in 27/37 (73%) patients, by discharge from hospital their disease severity score had fallen to a median of 27% of the pre-treatment figure and only 3/27 required topical corticosteroids. There were no clinical or laboratory findings which could be used to predict the outcome. A strict antigen avoidance regimen may be associated with improvement of atopic dermatitis where conventional treatments have failed.

MANAGEMENT OF SEVERE ATOPIC DERMATITIS

Y. de PROST

Service de dermatologie - Hôpital Necker

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New treatments were recently proposed for the management of severe atopic dermatitis. They all act on some component of the immune reaction (type I an IV) which provoke the eczematous reactions. Oral Cyclosporin reduces the number of CD4, the secretion of interleukins and the function of Langerhans cells. Although the action of oral Cyclosporin at moderately high doses is regular and rapid, the risk of serious side-effects and the reappearance of progressive desease after stopping the treatment limits the indications of this drug in A.D.

Photochemotherapy has been shown to decrease the number of CD4 and Langerhans cells. The percentage of remission is better with UVA alone or with UVA and B combined than with UVB alone. THymic hormone extract also used in severe atopic dermatitis repairs the deficit in cellular immunity.

Gamma interferon inhibits IgE synthesis induced by interleukin 4, increases expression of Fc Gamma receptors and increases superoxyde production by circulating monocytes. More recently, two other approaches were published : treatment with complexes of allergen and specific antibodies to dermatophagoïdes pteronyssinus, and treatment with interleukin-2.

Clinical results of trials with these new therapeutical appproaches will be detailed. All these treatments have infortunatly only a transitory, effect but can help to stop a flare of severe A.D..

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HIGH-DOSE-UVA1-THERAPY IN THE TREATMENT OF PATIENTS WITH ATOPIC DERMATITIS. Jean Krutmann and Erwin Schöpf, Department of Dermatology, University of Freiburg, FRG.

The therapy of acute atopic dermatitis (AD) is dominated by the use of corticosteroids (CS). Since long term use of CS may cause a variety of side effects, it is important to develop alternative modalities, e.g. phototherapy with Ultraviolet (UV) light. Recently, UVAB therapy has been found to be superior to conventional UVB therapy in the treatment of AD. Since the UVA doses employed in UVAB therapy are rather low, the therapeutic effectiveness of High-Dose-UVA1 irradiation in the management of patients with acute AD was examined. Patients in the High-Dose-UVA1 group (n=15) were irradiated with 130 J/cm^2 UVA1 (340-440 nm, UVASUN 30.000 BIOMED), the control group (n=10) was treated with UVAB therapy (300-400 nm, Wolff B1-12) in an MED-dependent fashion. Both groups received a total of 15 treatments. Additional therapy was restricted to the use of emollients. Using an established clinical scoring system, statistically significant differences in favor of High-Dose-UVA1 were observed after 6 and 15 treatments ($p<0.01$). Six High-Dose-UVA1 exposures were sufficient to reduce the clinical score by about 50 %. The clinical improvement was associated with a significant decrease ($p<0.003$) in elevated serum ECP levels of patients receiving High-Dose-UVA1. These studies indicate that High-Dose-UVA1 is superior to UVAB in the treatment of patients with acute AD. In addition, High-Dose-UVA1 irradiation may represent a novel tool with which to study the pathophysiological events relevant for AD.

TREATMENT WITH TRADITIONAL CHINESE MEDICINAL PLANTS

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Following the observation of substantial benefit in patients receiving oral treatment with daily decoctions of traditional Chinese medicinal plants, we undertook initial open studies to evaluate this treatment approach in atopic eczema unresponsive to standard therapy. Subsequently we were able to progress to a placebo-controlled double-blind trial of a specific prescription formulated for widespread non-exudative atopic eczema.

Forty-seven children with extensive non-exudative atopic eczema participated in this study. Every child was given active treatment and placebo in random order, each for 8 weeks, with an intervening 4 week wash-out period.

Thirty-seven children tolerated the treatment and completed the study. Response to active treatment was significantly superior to response to placebo, and the degree of therapeutic benefit experienced by patients receiving active treatment was clinically valuable. No evidence of haematological, renal or hepatic toxicity was observed during the study period.

The results of this study demonstrate a beneficial effect of decoctions prepared from a specific formulation of Chinese medicinal plants in a group of children with extensive and severe atopic eczema. These findings suggest that there may be a wider therapeutic potential for traditional Chinese medicinal plants in this disease.

USE OF ALTERNATIVE MEDICINE BY PATIENTS WITH ATOPIC DERMATITIS

PETTER JENSEN
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In a questionnaire study at Rikshospitalet, Oslo, Norway, 227 of 444 patients with atopic dermatitis (51.1%) reported previous or current use of one or more form of alternative medicine. Homoeopathy, health food preparations, herbal remedies and diet changes were used most. Use was related to disease duration, disease severity and the inefficacy of therapy prescribed by physicians, as judged by the patients.

Patients who had used alternative medicine, were asked to state their main reason for trying alternative medicine. The answers indicated that the absence of satisfactory effect of physician-provided therapy was the most decisive factor. Their main information sources on alternative therapies were persons without skin disease, and the mass media. The majority reported no improvement or aggravation of their skin disease as a result of alternative treatments (except for diet changes).

The use of alternative medicine by patients with atopic dermatitis is common and should be of concern to dermatologists. The findings in this study emphasize the need for a critical attitude to claims of excellent results on atopic dermatitis of any therapy. Further research in order to improve treatment is needed, as well as improved patient/doctor communication and education.

ORAL BECOTIDE - A NOVEL AND EFFECTIVE TREATMENT FOR DIFFICULT ATOPIC DERMATITIS

Dr S E Aylett, Dr D J Atherton and Professor M A Preece*
The Department of Dermatology, The Hospital for Sick Children, Great Ormond Street and the Department of Growth and Development, The Institute of Child Health, London.*

Beclomethasone-17, 21—dipropionate (BDP) is a synthetic glucocorticoid which has a topical potency in human skin which is 500 times greater than cortisol-21-acetate. It is an effective treatment when inhaled for asthma, showing few of the side effects associated with oral corticosteroids. A doubleblind crossover trial (1) has demonstrated the benefit of orally administered BDP as a treatment for atopic eczema in childhood. The growth of children receiving inhaled BDP for asthma has been normal at low standard dosage (400-600 mcg per day). However, nocturnal adrenal suppression has been documented as a dose-dependent phenomenon in children receiving dosage in this range.

We have monitored linear growth and adrenal function in a group of 14 children treated with oral BDP for severe atopic eczema. Treatment was with 1800 mcg for one month, followed by gradual dosage reduction to the minimum required to control the eczema. Stable control of disease was achieved in 10/14 patients (mean dose: 1000 mcg/day, range 800-1800).

At this maintenance dose, some deceleration of linear growth was observed in 8/10 patients. None of the other well known adverse effects associated with systemic corticosteroid administration , such as increased weight, were observed.

We consider that oral BDP is useful treatment in more severe childhood atopic eczema, but that growth should be monitored carefully during its use, with appropriate dose adjustment.

Reference

Heddle RJ, Bulpitt CJ, Atherton DJ. Combined oral and nasal beclomethasone dipropionate in children with atopic eczema: a randomised controlled trial. Brit. Med. J. 1984; 289: 651-654.

TREATMENT OF THERAPY-UNRESPONSIVE ATOPIC DERMATITIS WITH CLOBETASOL PROPIONATE AND A HYDROCOLLOID OCCLUSIVE DRESSING

Volden, G.

University of Trondheim, Norway

During the last years 48 patients with therapy unresponsive chronic skin lesions of atopic dermatitis were treated once a week with clobetasol propionate lotion left under the occlusive patch Duoderm®. They had previously not or only poorly responded to topical corticosteroids. The lesions completely resolved in 44 while partial remission was observed in the remaining 10. The mean time to obtain complete remission was: Lichenifications 2 weeks, pruriginous lichenoid papules 12 days, chronic hand eczema 2.5 weeks, nummular eczema 8 days, perioral eczema 11 days and breast eczema 10 days. Adverse experiences were mild and infrequent. The amount of topical corticosteroids is reduced 20 to more than 100 times compared with common topical steroid treatment. Conclusion: Clobetasol propionate and Duoderm® once a week is the treatment of choice for therapy unresponsive lesions of atopic dermatitis.

USE OF LIPOSOME PREPARATIONS TO INCREASE THE BENEFIT-RISK RATIO OF GLUCOCORTICOID TREATMENT FOR ECZEMA

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and
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Atopic eczema differs in so far from other types of inflammatory skin disease as effective treatment still is primarily based on the topical application of glucocorticoids. While their potency is about adequate unwanted effects of this type of drug are still a problem. This in particular applies to atrophy which is said to be due to the anti-proliferative action and not to the anti-inflammatory one. To find out if a therapeutic drug carrier system for topical application, i.e. liposome encapsulation can make glucocorticoids safer a 0.039 % betamethasone dipropionate (BDP) liposome preparation was compared to a conventional commercial propylene glycol-gel formulation containing 0.064 %. To do so 10 patients each suffering from atopic eczema and psoriasis vulgaris were treated over 14 days using a double-blind randomized paired trial design. While the liposome preparation proved more effective in eczema in particular judging from the parameters erythema and scaling it turned out less effective in psoriasis vulgaris.

Thus liposome encapsulation seems to increase the anti-inflammatory effect of a topical glucocorticoid needed for the treatment of eczema. This, however, is not parallelled by an increased anti-proliferative action seemingly needed for the treatment of psoriasis. This hints at an increased benefit-risk ratio.

"WET WRAP" DRESSINGS FOR THE TREATMENT OF ACUTE ERYTRHRODERMIC ECZEMA

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Dept of Dermatology, The Hospitals for Sick Children, London

A technique using cotton tubular bandages impregnated with a weak steroid cream is described and and referred to as "wet wraps". This method of treatment for children with acute erythrodermic eczema at The Hospitals for Sick Children has been studied over a two year period. Clinical response, duration of therapy, cortisol levels and subsequent progress are reviewed. The dressings comprise an inner wet suit (soaked in diluted steroid **cream**) and an outer dry suit, changed twice daily. Thirty children received this treatment regime following a standard protocol. Children were aged nine months to sixteen years. Length of treatment with wet wraps ranged from 2 to 5 days. Cortisol levels were indicative of pituitary adrenal axis suppression at the time of treatment but returned to normal within two weeks. Children were changed to maintenance treatment of 1% hydrocortisone **ointment** applied once or twice daily to areas of eczema as necessary. Some of the older children required the use of a moderately potent topical steroid **ointment.** All the children responded well to treatment with wet wraps and there were no relapses at the two week follow-up outpatient appointment. Wet wraps are a useful inpatient procedure for the treatment of acute erythrodermic eczema. Oral corticosteroids are less effective in this situation and should be avoided.

ALLERGEN-ANTIBODY COMPLEXES IN THE TREATMENT OF ATOPIC DERMATITIS: PRELIMINARY RESULTS OF A DOUBLE-BLIND CLINICAL TRIAL

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Université Catholique de Louvain, Brussels, Belgium

Atopic dermatitis (AD) may be exacerbated by exposure to airborne allergens, among which *Dermatophagoides pteronyssinus* (*Dpt*) might be of prime importance. The presence of specific IgE antibodies to these allergens in skin biopsies of AD patients indicates that an IgE-mediated immune response may be involved in the pathogenesis of AD. Suppressing the production of IgE antibodies could therefore represent a means of improving patients.

Complexes made of antigen and specific antibodies can selectively suppress the production of that antibody and we are currently studying the capacity of allergen-antibody complexes to reduce *Dpt* hypersensitivity in AD.

Twenty-three adult patients suffering from atopic dermatitis and with biological evidence of sensitivity to *Dpt* participated to a double-blind study. Twelve patients received intradermal injections of allergen-antibody complexes made with an excess of autologous specific anti-*Dpt* antibodies, while 11 patients received the carrier buffer only. After 4 months the placebo patients were treated with the active preparation. Results will be presented for the first 8 months of follow-up.

The clinical intensity of dermatitis was evaluated by summing the scores of eight types of skin lesions and the extent over the body surface area was calculated by using the "rule of nines." The therapy was devoid of side-effects. Out of the 22 patients whose data could be analyzed, 16 (73 %) showed a significant remission of skin lesions. In those patients the severity index (clinical score x % body surface area) was reduced by an average of 70 %.

These data, together with those obtained in a previous open study with 10 patients (Dermatologica 182:98, 1991), indicate that at least some atopic dermatitis patients can benefit from immunization with allergen-antibody complexes and that the immune response against *Dpt* is a significant exacerbating factor of atopic dermatitis.

POSTERS

1. Psoriasis and atopic dermatitis; Concomitance and pathophysiology.
W Beer, A Smith, J Kassab, P Smith, C Rowland Payne.
Ysbyty Gwynedd, Bangor, Univ. College of North Wales, Bangor and Kent & Canterbury Hospital, Canterbury, England.

2. Atopic Dermatitis. Experience of nine years in the department of Dermato-Venerology of Tlemcen (West-Algeria).
O. Boudghene-Stambouli, A. Merad-Boudia, Algeria.

3. Atopic palmo-plantar eczema.
Cespa, M., Nume, A., Brizzi, P., Miori, L., Ruzza, M., Dept. of Derm., Univ. of Pavia, Italy.

4. Does recombinant Granulocyte-Macrophage Colony-Stimulating Factor (GM-CSF) play a crucial role in the pathogenesis of atopic dermatitis after bone marrow transplantation (BMT) ?
H. Yamada*, K. Tsubaki**, J. Chihara*** and T. Tezuka*, *Dept. of Derm., **Internal Medicine (Hematology), ***Internal Medicine (Clinical Immunology and allergy), Kinki Univ., Osaka, Japan.

5. The role of Langerhans cell and lymphokines in the expression of HLA-DR, CD1 and CD23 on keratinocytes in atopic dermatitis.
Miori, L., Cespa, M., Bellosta, M., Nume, A., Di Marco M., Domaneschi, E., Rabbiosi, G., Dept. of Dermatology, University of Pavia, Pavia, Italy.

6. Atopic eczema and immediate-type allergens - patch tests with pollen, mite, mould and basic food.
Elisabeth Vooks, Christiane Szliska, Michael Drosner, Jürgen Rakoski, Jörg Lang.
Dermatologische Klinik und Poliklinik der Technischen Universität München, Germany.

7. The role of Protein A from Staphylococcus aureus in exacerbation of atopic dermatitis.
Dr. Marion I. White, Dr. Karen Blessing.
Aberdeen Univ.. Professor William C. Noble - The Institute of Dermatology, London, England.

8. Narrow-band UVB (TL01) air conditioned therapy for chronic severe adult atopic eczema: S.A. George, D. Bilsland, B.E. Johnson, J. Ferguson.
Photobiology Unit, Ninewells Hospital and Medical School, Dundee.

9. No skin changes in the area with direct diaper contact among atopic dermatitis babies.
Yamamoto, K. (National Children's Hosp., Tokyo, Japan).

10. Mometasone Furoate (Elocon) 0,1% fatty Cream versus Betamethasone Valerate (Betnovate) 0,1% Cream in the Treatment og patients with Atopic and Allergic Contact Dermatitis.
G. Rajka[1], W. Avrach[2], L. Gärtner[3], H. Overgaard-Petersen[4].
[1]Dept. og Derm., Rikshospitalet, Oslo, Norway, [2]The Dermatol.clinic, Copenhagen, Denmark, [3]Dept. of Derm., Värnamo Hospital, Sweden, [4]Dept. of Derm., Västervik's Hospital, Sweden

11. Continuous and Intermittent Treatment of Atopic Dermatitis in Adults with Mometasone furoate (Elocon®) vs. Hydrocortisone 17-butyrate (Locoid®).
Vibeke Ottevanger[1], Susanne Høybye[1], Stig Balk-Møller[1], Flemming De Cunha Bang[2], Niels K. Veien[3].
[1] Dept. of Derm., Rigshospitalet Copenhagen, [2] Dept. of Derm. KAS Gentofte, [3]The Derm. Clinic Aalborg, Denmark.

12. Atopic Dermatitis Education Programme (ADEP).
Gieler, U., Stangier, U., Bräuer, J., Freiling, G., Kirn, U. and Ehlers, A. Dept. of Derm., Univ. of Marburg, Germany.

Atopic Dermatitis. Experience of nine years in the department of Dermato-Venerology of Tlemcen (West-Algeria).

O. Boudghene-Stambouli, A. Merad-Boudia.

From 1981 to 1989, that is nine years, we registred 5360 cases of eczemas (11,7%) among consultations 46197, consultations in the only department of a "Wilaya" (County) of about 700 000 hibitants.

It was noticed:

783 atopic dermatitis (14,6%)
874 contact dermatitis (16,3%) of the eczemas)
2364 eczemas termed indeterminate (44,2%)

From 1981 to 1987, that is seven years, we registered 4429 cases of eczemas (11 %) among 39992 consultations. It was noticed:

670 atopic dermatitis (15,1%) (with
394 males and 276 females.).
Children aged below 15 are the overhelming majority of the affected (84,6%).
651 Contact Dermatitis (14,7% of the Eczemas).
1977 eczemas termed indeterminate (44,6%).

The atopic dermatitis is more frequent within the male population and the child is the principal concerned.

Our figures are certainly far from realistic since. All the affected do not ask for consultation or are not regulary followed. A specialised consultation in allergology will better inform us in a near future.

PSORIASIS AND ATOPIC DERMATITIS: CONCOMITANCE AND PATHOPHYSIOLOGY

W Beer, A Smith, J Kassab, P Smith, C Rowland Payne
Ysbyty Gwynedd, Bangor, University College of North Wales, Bangor
and Kent & Canterbury Hospital, Canterbury

In the last two decades there has been increased interest in the pathomechanisms of these two disorders. Comparisons are frequently made and several common pathomechanisms have been published (1), (2).

A clinical study has been done on 697 patients. Of these 428 had psoriasis (Ps), 224 had atopic dermatitis (AD) and 45 had both Ps and AD. 286 patients with non inflammatory disorders, like pigmented naevi, were also examined for the presence of Ps and AD. Our results show that 16.7% of AD patients had Ps and that 9.5% of the Ps patients had AD.

Our results indicate that the two diseases are not mutually exclusive, as suggested elsewere (3), and do occur concomitantly. We have looked for Ps in AD patients and vice versa and have made a deliberate search for the two conditions in all patients examined. These two factors probably explain the difference in our results from those of others.

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ATOPIC PALMOPLANTAR ECZEMA.

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We considered in this study a group of 58 patients of both sexes, aged from 6 to 30 years, with diagnosis of "atopy", defined by presence of at least 4 of Hanifin and Rajka's criteria (1980) for each subject; 28 of these patients (49,7%), 6 of them (21,7%) were children under 12 years of age, were affected with palmoplantar eczema. These 28 patients have been studied with patch tests using the Italian GIRDCA series: 6 of these subjects, all over 12 years of age, showed positive results to one or more allergens (nickel sulfate was present in 4 of the 6 cases).

Symptomatology of most of these patients was not influenced by seasons or other factors (i.e. diets, specific hyposensitizing therapy to mites, etc.).

Our study, according with data of the present literature, permits to conclude that palmoplantar eczema is only one of the clinical manifestations of "atopy", an entity that must be clearly differentiated from pompholix, allergic contact dermatitis and drug reactions.

Does recombinant Granulocyte-Macrophage Colony-Stimulating Factor (GM-CSF) play a crucial role in the pathogenesis of atopic dermatitis after bone marrow transplantation (BMT)?

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We administered GM-CSF to 5 patients who received BMT to promote increase in the numbers of, and the enhanced activity of, granulocytes. Atopic dermatitis(AD)-like eruptions appeared in 2 patients.One donor did not suffer from AD, allergic rhinitis(AR), nor asthma ; he only had dry skin. The other donor did not suffer from AD, AR nor asthma but had ulcerative colitis. After BMT, the number of eosinophils and neutrophils in the peripheral blood of both patients had increased. The skin eruptions were follicular papules that covered the whole body,similar to one of the AD skin lesions.Histologically, neutrophils, eosinophils and lymphocytes infiltration were observed around the follicle, without any GVHD signs in the other organ.It was interesting to observe that the IgE serum level of the 2 patients were higher than in the other subjects. It has been shown that IgE-mediated late-phase reaction occurs in AD and that eosinophils also play a role in AD. Also, serum eosinophil cationic protein (ECP) levels were higher than in the other patients. In these cases, it has been suggested that the donor had some primary genetic cause which is related to AD and that treatment with rGM-CSF enhanced eosinophil activity and IgE production, resulting in AD-like eruptions. Taken together, the above facts indicate that GM-CSF is involved in the pathogenesis of a subset of AD.

THE ROLE OF LANGERHANS CELL AND LYMPHOKINES IN THE EXPRESSION OF HLA-DR, CD1 AND CD23 ON KERATINOCYTES IN ATOPIC DERMATITIS.

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The existence of IgE receptors on Langerhans cells and intercellular positivity of HLA-DR, CD1 and CD23 on keratinocytes on the lesioned skin of atopical subjects led us to analyse the immunophenotypical characteristics of the cell populations involved in much greater depth.

The simultaneous intercellular positivity on keratinocytes for IgE receptors and the HLA-DR antigen has been demonstrated. This finding has suggested the existence of the possible alternatives either the modification of membrane antigens of keratinocytes, or the shedding of molecules with receptorial capacity induced by Langerhans cells. We observed a probable transepidermal elimination of Langerhans cells, which, at the same time, seem to shed the molecules responsible for positivity on anti-HLA-DR, CD1 and CD23 keratinocytes in the intercellular space. A severe and diffuse intercellular positivity for HLA-DR has been observed, including only the areas which were characterized by high epidermotropism; CD1 and CD23 were positive only according to the intercellular spaces adjoining the dendritic cells (CD23+/CD1+) and their prolongations. According to these findings we suggest that Langerhans cells release IL-1 and then appear to control the release of gamma-interferon, stimulating the activation of a particular subset of T-helper lymphocytes which are capable of releasing IL-4 and IL-5, but not as our study highlighted, IL-2.

Atopic eczema and immediate-type allergens - patch tests with pollen, mite, mould and basic food.

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The aim of this investigation was to obtain eczematous reactions in patch tests with immediate type allergens in atopic dermatitis patients. In the modified patch test (abraded skin) 65% out of 100 adult patients had a positive patch test reaction with an early starting dermatitis in the test area to house dust mite and/or to grass pollen. The correlation to the corresponding intracutaneous test was high with house dust mite and reasonable with grass pollen. In the modified patch test with moulds and basic food we did also obtain positive reactions, but fewer and weaker than with the allergens mite and grass pollen.

The rôle of Protein A from Staphylococcus aureus in exacerbation of atopic dermatitis.

Dr Marion I. WHITE

Dr Karen BLESSING

ABERDEEN UNIVERSITY

Professor William C. NOBLE - The Institute of Dermatology, London.

The cutaneous reactions induced in the skin of human volunteers by Protein A have been studied. There is a vigorous inflammatory reaction after intradermal injection (250 µg/ml in phosphate buffered saline) with an immediate weal and flare and a spreading erythematous reaction from 6 to 24 hours after injection (1). There is marked individual variation and a qualitative difference was seen in patients with atopic dermatitis compared to patients with psoriasis (2). The inflammatory reactions in non-immune guinea pigs and guinea pigs immunised by protein A have been compared. The histological reactions will be reported in detail.

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   Skin response to Protein A.
   Proceedings of the Royal Society of Edinburgh 79B, 43-46

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   The cutaneous reaction to staphylococcal Protein A in normal subjects and patients with atopic dermatitis or psoriasis.
   British Journal of Dermatology 1985, 113, 179-183

NARROW-BAND UVB (TL-01) AIR CONDITIONED THERAPY FOR CHRONIC SEVERE ADULT ATOPIC ECZEMA: S.A.George, D.Bilsland, B.E.Johnson, J.Ferguson. Photobiology Unit, Ninewells Hospital and Medical School, Dundee.

The long term adverse effects of potent topical steroids are a major concern in the treatment of severe adult atopic eczema. Alternative therapy with *broad-band UVB (290 - 320nm)* is limited by burning and the exacerbating effects of perspiration. A newly developed fluorescent source of *narrow-band UVB (312 ± 2nm)*; Philips TL-01, has been shown in psoriasis to be as effective as broad-band UVB with less burning episodes[1], and a reduced potential for carcinogenicity[2].
We now report an open study of TL-01 therapy in 21 adult patients with chronic, severe atopic eczema. Following a 12 week baseline assessment of conventional topical therapy alone TL-01 therapy was given 3 times weekly for 12 weeks. Monthly follow up was undertaken for 6 months. *Eczema severity*; scored by both clinician (using a recognised grading system) and patient (on linear analogue scales 0 - 10), and *potent topical steroid use* were monitored fortnightly or monthly throughout the study.
Cubicle refinements used were high irradiance and air conditioning (patient controlled); allowing shorter treatment times and adjustable temperature with increased convenience and patient comfort.

RESULTS:(n = 21)	Mean severity score		Steroid use*g/wk	
	Clinician	Patient	Grade I	Grade II
Pre TL-01 (baseline)	59	4.5	3.47	8.6
Post TL-01 therapy	19	2	0.2	1.3
Mean reduction	67.8% **	55.5% **	94.1% **	84.9% **

* Grade I = very potent & Grade II = potent topical steroid (MIMS)
** $p < .0001$ (Kruskal Wallis test)

The results demonstrate the marked improvement achievable with TL-01 therapy in addition to the significant reduction in the use of potent topical steroids. Of the 85% of patients with satisfactory clearance, defined as 50% of pre TL-01 score, half have relapsed at 6 month follow up.
In conclusion, narrow-band UVB therapy with air conditioning is an effective and steroid sparing treatment in severe adult atopic eczema.

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- No skin changes in the area with direct diaper contact among atopic dermatitis babies -. Yamamoto,K. (National Children's Hosp., Tokyo, Japan).

The author indicated in 1978 the importance of superficial properties of diaper materials in the mechanism of onset of diaper rashes. In that report it was emphasized that eczematous lesions in the area which directly contacts with the diaper are mild, even in infants with eczema involving eruptions on the whole body, when the environment, including the diaper materials, in favorable. Since the report, these findings have greatly affected the improvement of disposable diapers in Japan, and at present the materials and function of diapers produced in Japan are said to be of the best quality in the world. With the spread of these paper diapers of good quality throughout the general market, the tendency of eczematous changes to be almost absent or mild in the area which directly contacts with the diaper in affected infants is increasingly noted in the examination of patients with infantile atopic dermatitis in recent years.

Mometasone Furoate (Elocon) 0,1% fatty Cream versus Betamethasone Valerate (Betnovate) 0,1% Cream in the Treatment of Patients with Atopic and Allergic Contact Dermatitis.

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160 patients of which 124 with atopic eczema were enrolled in this multicenter, investigator-blind, randomized, parallel group trial comparing the efficacy and safety of Elocon once daily with Betnovate twice daily during 3 weeks.
The atopic dermatitis group had 117 patients valid for efficacy whilst the contact eczema group had only 36.

The patients were evaluated clinically on day 1 (baseline) and thereafter on days 8, 15 and 22.

Statistically significant difference in favour of mometasone furoate were seen for all variables, i.e. erythema, induration, pruritus, total signs/symptoms, the percentage improvement of total signs/symptoms and physicians global evaluation change from baseline on days 8, 15 and end study (last valid visit) (8 0.04).
In the atopic eczema group, the differences are significant (p 0.01) in favour of mometasone furoat for all visits.

% Improvement of total scores	Days	8	15	22	End study
	Momet.	80	91	95	96
	Betamet.	58	74	85	82

Reported local adverse experiences were few and mild and the differences between the treatment groups were non-significant as were the differences in plasma cortisol levels.

It is concluded that Elocon 0,1% fatty cream applied once daily is an effective, safe and well tolerated treatment for atopic dermatitis and allergic contact eczema.
In addition, mometasone furoate seems to have a more rapid relief of symptoms than betametasone valerate. For the atopic eczema patients mometasone furoate seems to be even more favorable.

Continuous and Intermittent Treatment of Atopic Dermatitis in Adults with Mometasone furoate (Elocon^R) vs. Hydrocortisone 17-butyrate (Locoid^R).

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[1] Dept. of Dermatology Rigshospitalet Copenhagen, [2] Dept. of Dermatology KAS Gentofte, [3] The Dermatology Clinic Aalborg.

Mometasone furoate (Elocon^R) is a new, potent, non-fluorinated corticosteroid for topical use. When applied in cream and ointment bases it has been shown to be highly effective in the treatment of various dermatoses and to produce few local or systemic side effects.

Methods

96 patients with a clinical diagnosis of typical atopic dermatitis took part in this investigator-blind, randomized, parallel group, multicentre trial, comparing the effect of Elocon^R and Locoid^R both in a fatty cream base. The patients were treated with either Elocon^R once daily for 3 weeks and then once a day for 3 consecutive days a week for additional 3 weeks or with Locoid^R twice daily for 3 weeks and then twice daily for 3 consecutive days a week for additional 3 weeks. The patients were evaluated clinically after 3 and 6 weeks. Morning plasma-cortisol levels were determined for 19 patients at the time of each evaluation.

Results

Both groups of patients showed statistically significant improvement of their dermatitis during the initial 3 weeks of treatment. After 6 weeks there was a significant greater improvement in the Elocon^R group. 41 of 48 patients (85%) vs. 27 of 38 patients (71%) in the Locoid^R group P= 0.0025. There was no supression of morning plasma-cortisol levels in either group. None of the patients showed any signs of skin atrophy.

Conclusion

The result of this study indicate that Elocon^R applied once daily is effective in the treatment of adults with atopic dermatitis and when used intermittently for maintenance treatment it is effective in controlling the dermatitis.

Atopic Dermatitis Education Programme (ADEP)

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The education programme for patients with atopic dermatitis developed at the dermatological clinic Marburg represents a practical cincept which takes the multifactorial influences into consideration. The programme consists of two components: An intensive dermatological training within theme-centered interaction group and a psychological training, which was especially developed for out-patient groups by Stangier, Kirn and Ehlers to improve coping with stress and disease-related problems. Outpatients with atopic dermatitis are treated in groups of 5-8 patients once a week for a period of 3 months. Experience with at least 13 groups and 120 patients receiving dermatological aducation are reported. They point out that patients with atopic dermatitis need more information about factors, which are able to modulate the sickness.

The atopic dermatitis education programme (ADEP) is also considered to be suited for dermatological practice. It is accepted by the participants and it is economical concerning the costs in relation to the long-term benefits.

1 x/week 3 months

ACCEPTED BUT NOT EXHIBITED POSTERS

BAKER'S YEAST AND ATOPIC DERMATITIS

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THE PREDICTIVE VALUE OF SCREENING TESTS FOR FOOD ALLERGY IN INFANTS WITH ATOPIC DERMATITIS

Taieb A, Debons M, Maleville J. Service de Dermatologie, Hôspital des Enfants, Bordeaux, France

A STUDY OF IMMUNE-RESPONSIVENESS TO WHEAT ANTIGEN BY IgG-, IgA-, AND IgE- IMMUNOBLOTTING WITH SERA FROM PATIENTS WITH ATOPIC DERMATITIS

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BAKER'S YEAST AND ATOPIC DERMATITIS

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The significance of allergy to baker's yeast (BY) (Saccharomyces cerevisiae) was studied in a population of 226 patients with atopic dermatitis. As controls 50 patients with allergic rhinitis and/or asthma and 173 non-atopics were studied. Sensitization to BY was compared with the severity of eczema, serum total IgE, response to other yeasts and to other common allergens.

The severity of AD was clearly correlated with the skin prick test response to BY, which in turn was correlated with the serum total IgE and skin prick test response to all other studied yeasts (Candida albicans, Candida utilis, Rhodotorula rubra, Cryptococcus albidus and Pityrosporum ovale). The skin response to BY was associated with the skin response to moulds but was not associated with the skin response to pollen, animal dander or house dust mite.

The survey was repeated in a subpopulation of atopics sensitized to BY after six years. The evaluation of the skin prick test response and the severity of eczema further supported the previous hypothesis of a correlation of BY reactivity and eczema. This time also a trial of yeast free diet was conducted to selected patients. The trial with yeast free diet gave relief of symptoms to majority of these included patients.

THE PREDICTIVE VALUE OF SCREENING TESTS FOR FOOD ALLERGY IN INFANTS WITH ATOPIC DERMATITIS. Taieb A, Debons M, Maleville J. Service de Dermatologie, Hôpital des Enfants, Bordeaux, France

A series of 127 consecutive patients with atopic dermatitis (83 males) have been screened for food allergens. Mean age at inclusion was 17.6 months (extremes 2-69 months). Patients were divided in three classes of increasing severity: class I: 36 (28%); class II: 60 (47%); class III: 31 (24%). Clinical grading was correlated with total IgE serum levels ($P < 0.001$, Spearman's test). The screening method included: a diet notebook recording simultaneously skin condition combined with a diet interview: specific IgE to 36 different foods (MAST CLA DHS system); prick testing with an age dependant battery of foods allergens. In 44 patients-group A- (34.6%) screening was negative. In 59- group B-, either prick testing and/or MAST-CLA was clearly positive (46.4%). In 24- group C- (18.8%), interpretation of results was difficult (class 1 MAST-CLA, prick test diameter < control). A positive correlation ($p < 0.001$, Spearman's test) was found between total IgE serum levels and number of positive trophallergens.
Single blinded food challenges with lyophylised foods (Lopharma) associated with open challenges were done in 34 patients in group B, and 8 in group C. 23 different foods were used in 146 challenges (challenges at various dosages with the same food in one given patient being counted as one). 43 challenges were positive in 24 children/44 (54%). Most positive reactions at challenges occured within one hour 15/43, within 1 and 4 hours 25/43. 3 reactions were of the delayed type. Type of reactions included: pruritus (23), erythema (22), worsening of eczema including oozing (7), urticaria (4), edema (4), vesicles (3), cough (3), asthma (2), vomiting (2), diarrhoea (2), fever (2); associated reactions ("syndromic reactions") were noted in 8 patients. There was an overall good correlation between blinded and open challenges. In four cases an isolated positive reaction was noted with whole egg (not found with capsules of egg white and with egg yolks) indicating a possible non specific histamine release. Egg being largely the predominant food allergen in this series (24 positive challenges) a correlation between screening tests and challenges was looked for. No clear conclusion could be drawn, prick tests and MAST-CLA being apparently able to detect different subsets of patients. Thus, food challenges are mandatory to make a definitive diagnosis of food allergy, since the relevance of nearly half of screening tests seems dubious.

A STUDY OF IMMUNE-RESPONSIVENESS TO WHEAT ANTIGEN BY IgG-, IgA-, AND IgE-IMMUNOBLOTTING WITH SERA FROM PATIENTS WITH ATOPIC DERMATITIS

S.Yokota[1], K.Tsubaki[1], H.Shimizu[1], T.Kuriyama[1], S.Matsuyama[1], K.Takahashi[2], and Z.Ikezawa[2].

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IgG, IgA, and IgE antibody responses to wheat flour proteins of 30 patients with atopic dermatitis(AD) and healthy subjects were investigated. Wheat flour proteins were extracted from wheat flour with reducing buffer. To these crude protein extracts increased levels of IgG and IgE antibodies were demonstrated in the AD patients sera by ELISA methods. Next the immune responses to each protein components were analysed by immunoblotting procedures. IgG, IgA, and IgE antibodies in AD patients sera recognized the multiple fractions of wheat proteins, and the amounts of antibodies to each protein components were much greater than those of control sera. Especially six major immunogeneic proteins were detected by AD sera, whose approximate molecular weights were 14KD, 25KD, 36KD, 45KD and 70KD. Thus the immunodominant components of wheat flour proteins could induce IgG, IgA, and IgE antibody responses in AD patients,and the immune reactions might be related to the pathogenesis of AD.