

March 1, 2001 Meeting Abstracts

Following are the abstract presentations from the 12th Annual Meeting of the American Dermatitis Society, held on March 1, 2001 in Washington, D.C. Congratulations to the award recipients under the Awards and Grants page.

Table of Contents

Tove Agner Susun An	Prevention of Hand Eczema in Wet Occupations Novel Evaluation Method for the Assessment of Irritating Potential of Lipsticks and Products
Cigdem Atahan April Atkins Erik Austin	Temporary Henna Tattoo Reactions in Children Patch Testing to Newer Allergens in an Atopic Population Persistent Allergic Contact Dermatitis to Residual Paraphenylenediamine in a Patient's Hair
Donald Belsito Adele Clark	Regional Variations in the Prevalence of ACD Does Clinical Experience Increase the Likelihood of Predicting the Outcome of Patch Testing, Or is it all a Guessing Game?
Christine Correale Mark Davis	Contact Dermatitis in a Woodworker Rate of Patch Tests Reaction to a Dermatophagoides Mix Currently on the Market
Ida Duarte	The Interference of the Substances Position that Compose the Series of Contact Tests in the False - Positive Tests Formation
Kimberly Edwards	Contact Allergy to Steroids: Discussing the Economic Impact and Necessity of Expanded Patch Testing
Jose Fernandez Vozmediano Lynn Giroux	Reliability of Patch Test With Dermatophagoides Mix 20% Interesting Case Demonstrating the Spectrum of Acrylate Allergy in One Individual
Jere Guin Linn Holness Firas Hougeir	Diaper Wipe Dermatitis Cutaneous Findings in Softwood Sawmill Workers Oral Metal Contact Allergy: A Cause of Oral Squamous Cell Carcinoma? A Pilot Study.
Marlene Isaksson	Allergic Contact Dermatitis to Budesonide Reactivated by Inhalation of the Allergen
Kelly Jerstad	First Known Reported Case of Allergic Contact Dermatitis to Latanoprost, the Active Ingredient in Xalatan Ophthalmic Solution
Lasse Kanerva Lasse Kanerva Lasse Kanerva	Ethylhexylzinc Dithiophosphate, A New Sensitizer in Cutting Fluid Ingredients and Allergenic Potential of Cellulite Creams Occupational Allergic Contact Dermatitis from 2,2-BIS[4-(2-Hydroxy-3-Methacryloxypropoxy)Phenyl]-Propane (BIS-GMA)
Joseph Kist	Efficacy of Contact Allergen Replacement Database (CARD) in the Treatment of Allergic Contact Dermatitis Secondary to Topical Skin Care Product Use
Daniel Kline Rosana Lazzarini Han Lee	Reproducibility and the Role of Expectancy in Nickel Patch Tests The Excited Skin Syndrome: The Study Realized in 34 Patients Cross Reactivity Among Epoxy Acrylates and BIS-F Based Epoxy Resins in Patients with BIS-A Epoxy Resin Sensitivity
Nikolay Matveev Jonelle McDonnell Sharon Merims Neils Nielson Scott Ravis Sakir Sahin	Telemedicine in Occupational Dermatology: First Experience in Russia Contact Allergy to Shellac in Mascara Investigation of the Threshold for Allergic Reactivity to Chromium Incidence of Contact Allergy in a Danish Adult Population ACD to Glutaraldehyde and Formaldehyde in Dental Personnel The Role of Nitric Oxide in the Etiopathogenesis of Allergic Contact Dermatitis
Lori Schaen Sibylle Schliemann-Willers	Vulvar Pruritus and Allergic Contact Dermatitis Prevention of Irritant Contact Dermatitis by Plant Fats

Sabine Sommer	Type-IV Hypersensitivity to Betamethasone Valerate and Clobetasol Propionate: Results of a Multi-Centre Study
Radoslaw Spiewak	Skin Prick Tests Do Not Seem Useful in Screening For Farmers' Occupational Dermatitis Caused by Plant Dusts and Animal Epithelia
James Taylor	Chronic Beryllium Disease
Summer Youker	Occupationally Induced Pyoderma Ganrenosum

PREVENTION OF HAND ECZEMA IN WET OCCUPATIONS

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Hand eczema is a major occupational disease in the industrialised world, especially in workers in wet-work occupations. The aim of the present study was to evaluate the effect of an educational programme for wet-work employees. 375 wet-work employees were included in the study and allocated to either intervention group or control group. The intervention group was exposed to an evidence-based skin care programme during the 5-month study period.

The effect of the intervention was evaluated by registration of knowledge about skin care, behaviour with respect to hand-wash, gloves, moisturisers etc., and clinical examination before and after a 5-month intervention period in the two groups. The result demonstrated positive effect of the intervention programme. Detailed results will be presented.

NOVEL EVALUATION METHOD FOR THE ASSESSMENT OF IRRITATING POTENTIAL OF LIPSTICKS AND PRODUCTS

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Safety is the fundamental property of cosmetics products. Ever increasing variety of ingredients, diverse formulations and the resulting cosmetic products come into the market every day, which makes it extremely difficult to evaluate all of their safeties. Safety of most cosmetic products except the ones made of either volatile compounds or special application is assessed by the animal- and human patch tests. Since lipsticks different from emulsion and toner are the hard make-up products of high frequency use, and their application is confined to the lips, we presumed that skin troubles caused by lipsticks might be different from those of the ordinary skin care products. Frequency ratio of the consumer complaints by the lipsticks is not so high and rather constant to some extent. However, the ordinary human patch test was not able to reproduce the positive response from the consumers sensitized by the ingredient, which makes it impossible to differentiate the subtle difference in irritating potential between the products.

For these reasons, we attempted to develop a methodology to evaluate the irritating potential between the lipstick products using the mode of human cumulative patch test mimicking the actual lipstick application. This method involved the spreading of lipstick products on the skin, followed by the occlusive patch test. This novel protocol allowed the measurement of subtle difference in the irritating potential between the products which did not show any response by the ordinary patch test. We suggest that this methodology can find its successful application to the wax and the similar products such

as stick-type foundation, deodorants, etc. which are not easy to be spread and absorbed through the skin.

TEMPORARY HENNA TATTOO REACTIONS IN CHILDREN

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Temporary tattoos are very popular among teenager groups. It generally contains natural henna. Henna is used alone or in combination with other coloring agents such as paraphenylenediamine (PPD). Allergic reactions to henna are not common, however PPD is a potent sensitizer.

Although henna tattoo is very popular in Turkish community, childhood allergic cases to henna are rare. We had three cases; 9 year-old girl, 11 year-old boy and 12 year-old girl, respectively who had applied temporary henna tattoo for cosmetic purposes. First case had applied tattoo several times. They had erythema, papulovesicular eruptions and edema on the application site. Patch tests were performed with European Standard Serial and Commercial Tattoo. Patients had 3 positive reactions to PPD. Topical steroid cream was effective in all cases. However, post-inflammatory hypopigmentation remained as the tattoo design. Although it is well known that the natural henna has a low allergic potential, addition of PPD to the henna may increase the risk of allergic reactions.

PATCH TESTING TO NEWER ALLERGENS IN AN ATOPIC POPULATION

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We compared the prevalence of positive patch tests to gold sodium thiosulfate in 20 patients with mild to moderate atopic dermatitis to the prevalence in 125 general patch test clinic patients. The latter group contains some patients with an atopic diathesis suspected of having allergic contact dermatitis and many non-atopic patients. We also performed patch tests to topical corticosteroids, and in the atopic patients only, to dust mite. Dust mite (atopy) patch tests were read at 48 hours, and all other patch tests at 48 hours and 9 days. Three (15%) of the atopic dermatitis and 25 (21%) of the general patch test clinic patients had reactions to gold. None of the atopic dermatitis patients tested positive to the topical steroids. Five (4%) general patch test clinic patients reacted positively to tixocortol pivalate and 2 (1.6%) were positive to budesonide. Ten (50%) atopic patients had positive dust mite reactions.

These data suggest no significant difference in gold reactivity in atopic dermatitis patients compared to other patients. The immunologic basis of dust mite allergy requires further study. A larger study is needed to assess the prevalence of steroid contact allergy in atopic dermatitis patients.

PERSISTENT ALLERGIC CONTACT DERMATITIS TO RESIDUAL PARAPHENYLENEDIAMINE IN A PATIENT'S HAIR.

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A 62-year-old, retired, male postal worker presented with a history of a pruritic and exudative scalp dermatitis, accentuated at the hairline and posterior auricular regions. Several months prior the patient had dyed his hair with an over-the-counter, permanent hair dye solution containing paraphenylenediamine (PPD) which triggered severe scalp reactions within two days of use.

Patch testing to a standard (T.R.U.E. Test[®]) and hairdressers' series was conducted; samples of patient's hair were applied with saline under Finn Chamber[®] occlusion. Patch tests read at 48 and 96 hours demonstrated PPD was 3+ positive with spreading and bullae formation. PPD derivative para dyes (4-aminophenol, 2-nitro-4-phenylenediamine, para-toluenediamine, and para-aminodiphenylamine) all demonstrated 2+ reactions. Of greatest interest was a notable erythema with induration at two days and persisting to 96 hours to snippings of the patient's hair.

Allergic contact dermatitis (ACD) to hair products, which penetrate the hair shaft, has been reported previously, as has the development of scalp eczema, the result of ACD. While ACD to PPD and its derivatives is common, the literature indicates that a persistent reaction to residual allergen in the hair shaft is not. Our case demonstrates a heretofore-unreported persistent ACD to the relatively small quantities of PPD retained in dyed hair. This clinical scenario should be recognized. Appropriate patch testing, to include samples of the patient's own hair, can be a crucial diagnostic maneuver.

REGIONAL VARIATIONS IN THE PREVALENCE OF ACD

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This study assessed whether regional occupational differences might account for different rates of ACD. Between July 1, 1994 and June 30, 1996, 3,120 patients were evaluated by the NACDG; 141 were from Kansas City (KC). For comparison, the data from KC were contrasted with the NACDG totals minus KC using the χ^2 test with Yates' correction.

Demographic data for KC did not differ significantly from the other centers, except that a greater percentage of males were tested in KC (48%) than nationally (38%, $p=0.001$). The two most frequent diagnoses were similar among all centers: ACD (>50%) and ICD (~20%). The hand was most commonly affected: KC, 27%; other centers, 37%. Allergens with significantly ($p<0.05$) greater incidence of positive reactions in KC were: formaldehyde (FO) and its releasers (FOR), glutaraldehyde, MCI/MI and potassium dichromate.

FO and FOR were the most frequent allergens in KC. Occupational exposure was seen in dental hygienists, hairdressers, machinists, janitorial personnel, lithographers, cashiers, material handlers and production operations. A comparison of employment by general industry between KC and the other NACDG centers (1990 US census and 1995 BLS) displayed no differences in employment in these industries between KC and the other areas. The most significant difference in ACD between KC and the other centers was for potassium dichromate ($p<0.01$): 5.9% in KC vs 1.8% nationally. Occupational exposure in construction accounted for 50% of positives in KC. Again, a comparison of employment between KC and the other centers showed no increase in construction locally, (even when corrected for the higher % men in KC). The increased incidence of ACD to glutaraldehyde (health care workers) and MCI/MI (machinists/hairdressers) could also not be explained occupationally. The observed differences in ACD in KC may be due to environmental or social factors, and/or to local prescribing habits.

DOES CLINICAL EXPERIENCE INCREASE THE LIKELIHOOD OF PREDICTING THE OUTCOME OF PATCH TESTING, OR IS IT ALL A GUESSING GAME?

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Introduction: Many physicians mistakenly believe they can diagnose and treat contact dermatitis based on history and physical examination alone. We wondered what role clinical experience in contact dermatitis has in the ability to predict the patch test result and clinical relevancy in patients referred to a contact dermatitis clinic.

Methods: Three providers with varying degrees of medical training gave initial predictions of patch testing results: a NACDG member dermatologist with 10 years experience in patch testing, a licensed practical nurse with 3 years experience as a patch test technician, and a certified physician assistant who was just learning about ACD and patch testing. The providers individually predicted whether patch tests would be positive or negative and if positive results would be relevant or not for each patient tested. A coin flip was also done.

Results: The providers were able to correctly guess a positive or negative outcome 66%, 69% and 60% of the time. The coin flip correctly guessed the outcome 47% of the time. The providers were able to correctly guess relevancy 55%, 77% and 61% of the time. The coin flip correctly guessed relevancy 45% of the time. The patch test technician had the highest percentage of correct responses in both categories of predictions. The PA's predictions improved with time.

Discussion: Despite clinical and patch test experience, it is difficult to predict which patients referred for patch testing will have a relevant positive allergen based on clinical assessment alone. Patch testing is essential in confirming a suspected diagnosis of allergic contact dermatitis.

CONTACT DERMATITIS IN A WOODWORKER

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Background: Woods and wood dust are capable of causing allergic or irritant contact dermatitis that typically begins on the exposed areas of the hands and forearms which then can progress to involve other exposed areas such as the face and neck. Allergens found in woods include quinones, stilbenes, phenols and terpenes.

Objective: We report a case of an 84 year old woodworker who developed allergic contact dermatitis on the forearms, neck and face.

Methods: A patient with dermatitis on the forearms, face, neck and chest was patch tested using the North American Standard tray, 2,6 dimethoxyl 1,4 benzoquinone and shavings from woods that he had been working with on a regular basis.

Results: 1+ reactions to methylidibromo glutaronitrile phenoxyethanol and sodium gold thiosulfate

3+ reactions to shavings of Bolivian rosewood and Cocabola wood

Conclusions: Allergens found in Bolivian rosewood and Cocabola wood were contributing to this patient's chronic dermatitis.

RATE OF PATCH TESTS REACTION TO A DERMATOPHAGOIDES MIX CURRENTLY ON THE MARKET

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Background: The contribution and relevance of the dust mite antigen (dermatophagoides) to the occurrence and perpetuation of atopic dermatitis and other forms of dermatitis, particularly airborne contact dermatitis, has long been debated. Methods to measure dermatophagoides reactivity include measurement of specific IgE and immediate type responses to prick test challenge. More recently patch testing has been advocated as a means of measuring reactivity to dermatophagoides.

Aims: To determine the rate of patch tests sensitivity to dermatophagoides mix in the general population receiving patch testing.

Methods: A commercially available mix of 2 species of Dermatophagoides (*D. Pteronyssinus* and *D. Phaninae*) recently became available. We picked the lower concentration of this mix (20%) and added it to our standard patch testing tray between January 1999 and January 2000. The results were interpreted in the standard manner.

Results: At Mayo Clinic Rochester, 438 patients received patch testing to the Dermatophagoides mix. At 96 hours, 51.8% of those tested had reactions, consistent with an "allergic" type reaction. The dermatophagoides mix was the commonest allergen to evoke a reaction in the standard tray.

Conclusion: The currently available formulation of dermatophagoides mix, even at its lower concentration, leads to a high rate of reactivity in the general population undergoing patch testing.

THE INTERFERENCE OF THE SUBSTANCES POSITION THAT COMPOSE THE SERIES OF CONTACT TESTS IN THE FALSE- POSITIVE TESTS FORMATION.

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The epicutaneous tests were carried out in the patients directed to the Allergy Sector of the Dermatology Clinic of Santa Casa de São Paulo, Brazil, with hypothesis of contact dermatitis, during the period from February to July 2000. A research protocol was prepared and applied in 200 patients. The series of standard contact tests, which was named version 1 (V1), was applied on the left backside, and on the right side the same substances were applied in different positions, avoiding the proximity of the elements with chemical affinity. This new series was named version 2 (V2). In another 100 patients, V1 was applied on the left backside, and another version of the series named V3 was applied on the right side. V3 was composed by the same elements, which were placed near those with tendency to present crossed reaction.

Conclusions: 1) The substances that compose the series of contact tests with positive tests may interfere in the positivity of the tests of the substances applied nearby, mainly in those with chemical affinity to these elements. 2) The position of the substances which compose the series of tests must be determined; those with chemical affinity must be

tested away from each other, avoiding thus the induction of false- positive tests and consequently the Excited Skin Syndrome formation.

CONTACT ALLERGY TO STEROIDS: DISCUSSING THE ECONOMIC IMPACT AND NECESSITY OF EXPANDED PATCH TESTING

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Case Report: An 80 year – old white male with a thirty-year history of atopic dermatitis presented with erythematous and fissured hands. Prior to presentation, he had numerous visits to Dermatology clinics and was treated by six different dermatologists. Multiple topical steroid preparations were prescribed and there was routinely minimal to no improvement in his condition. On the patient’s twelfth visit to dermatology, patch testing was scheduled. Patch testing was performed to our expanded tray, which contains fifty standard screening allergens, including those found in both the True Test and the standard allergen series. He was also patch-tested to a Corticosteroid Series. At follow-up, the patient had positive reactions to mercapto mix mercaptobenzothiazole, budesonide, and tixocortol-21-pivulate.

This case illustrates the importance of expanded patch testing with chronic hand dermatitis. With efforts from the government to limit the number of allergens, this case demonstrates that performance of expanded patch testing is necessary. If this patient had only been patch tested to the Hermal Standard Allergen Series, his rubber allergy would have been detected, but his steroid allergy would have not been identified, therefore costing the patient more in office visits and prescriptions.

INTERESTING CASE DEMONSTRATING THE SPECTRUM OF ACRYLATE ALLERGY IN ONE INDIVIDUAL

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Objective: Note the clinical range of acrylate allergy in one patient.

Methods: This is the case of a 47 year old female who developed an acute ACD after installation of a temporary crown. A similar reaction occurred months later after permanent crown inserted as well. The patient previously used sculptured and preformed nails and reacted to the glues used.

Patch Testing - 1) NACDG Standard 2) Chemotechnique Dentistry 3) Additional acrylate polymers and photo-initiators

Results at 96 hrs -

3+++	= EGDMA
2+	=TEGDMA
2+	= butanediol DMA
2+	=MMA
3+	= ethyl acrylate
3+	=16 hexandiol DMA
2+	= tetrahydrofurfuryl MA
2+	= thimerosal
1+	= glutaraldehyde

Months later in April 2000 patient developed a severe ACD in suprapubic and genital area after using Poise pads.

MSDS revealed Poise pads have several layers containing polyacrylate, polyethylene, polypropylene and stretch bond laminate. Patient re-patch tested to various components of pad and she had some strong reactions at 96 hours.

Conclusion: This case demonstrates the spectrum of acrylate allergy in one patient. It reveals a new potential source of these allergens.

DIAPER WIPE DERMATITIS

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Products such as moist towelettes, liquid soaps, and shampoos are easily overlooked as potential causes of hand eczema. We have seen at least eight patients whose principal source of exposure was to moist towelettes. The presentation is most commonly hand eczema especially involving the thumb and two adjacent fingers of the dominant hand. Since these products are often used in the perineal region, that area may also be involved in adults but we have never seen it involve the diaper area of infants, despite regular use.

Most were preservative sensitive with formaldehyde, formaldehyde releasing products, or MI/ MCI in most cases. An equal number of patients who are (perhaps less) sensitive to either fragrances or preservatives seem to be aggravated by the use of such products, but proof of causation is difficult because the primary problem remains after withdrawal.

CUTANEOUS FINDINGS IN SOFTWOOD SAWMILL WORKERS

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Exposure to wood dusts may cause contact dermatitis. Though there are many case reports in the literature, there are few workplace based studies of workers exposed to wood dust.

The objective of the study was to describe the cutaneous findings in a group of softwood sawmill workers.

53 sawmill workers with exposure to pine and spruce were evaluated using a questionnaire, cutaneous examination, patch testing with pine and spruce, a friction test with pine and spruce, personal air sampling for total respiratory dust levels.

The mean age was 32 with an average of 7 years work in the mill. 13% had complaints of current skin rash, with 2 of the 7 noting a work association. 17% reported past skin problem with 3 of the 9 noting work association. On clinical examination by JRN 11% had warts, 10% acne, 10% tinea, 8% psoriasis, 4% contact dermatitis, 2% atopic dermatitis and 2% dyshidrotic eczema. Of the 13% reporting a current skin problem, 71% had findings on examination. None had positive patch tests to pine or spruce. One worker had a positive friction test.

Though workers may develop contact dermatitis to woods and it was reported that some workers had previously left the mill because of cutaneous problems, in this group of softwood sawmill workers few were found to have a current skin problem related to work.

ORAL METAL CONTACT ALLERGY: A CAUSE OF ORAL SQUAMOUS CELL CARCINOMA? A PILOT STUDY

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Background: Some cases of oral lichenoid lesions may actually be contact allergy imitating lichen planus (LP). Since oral LP may be a risk factor for intraoral squamous cell carcinoma (SCC), contact allergy to dental metals may represent a carcinogenic mucosal insult.

Objective: To clarify the relationship between intraoral metal contact allergy and SCC carcinogenesis.

Methods: Eleven patients with a diagnosis of intraoral SCC adjacent to a metal dental restoration were patch tested to the Mayo standard metal series. Our prevalence of metal contact allergies was compared to a control population of previously published data of metal allergy in patients seen at contact allergy clinics.

Results: Ten patients (91%) had positive patch tests to metals. Eight (73%) were identified as relevant because the oral cancer was adjacent to a dental restoration containing a metal to which the patient was allergic (gold, silver, tin, mercury and/or copper). The prevalence of metal contact allergy in patients with SCC was significantly higher than in the control population.

Conclusion: Contact allergy to dental restoration metal may be a risk factor for the development of intraoral SCC. Patch testing to dental metals should be considered in patients who have an oral cancer near a metal dental restoration.

REACTIVATED BY INHALATION OF THE ALLERGEN

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Object: To study if inhalation of budesonide would result in reactivation of patch tests caused by budesonide and potentially cross-reacting substances.

Method: A randomized, double-blind, placebo-controlled study was initiated, in which 15 non-asthmatics hypersensitive to budesonide were provoked with budesonide or placebo by inhalation 6 weeks after having been patch tested with budesonide, its R and S diastereomers and potentially cross-reacting substances. Lung function was monitored using spirometry and repeated peak expiratory flow rate measurements.

Results: In 4/7 subjects inhaling budesonide reactivation of previously positive patch tests and other skin lesions occurred in contrast to no one of the 8 who inhaled placebo ($P=.026$). Reactivation of a potentially cross-reactive substance was also noted.

Conclusion: A patient hypersensitive to budesonide should not be given budesonide as an inhalant. The study design described may be used in studies on cross-reactivity.

FIRST KNOWN REPORTED CASE OF ALLERGIC CONTACT DERMATITIS TO LATANOPROST, THE ACTIVE INGREDIENT IN XALATAN OPHTHALMIC SOLUTION

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An 85 year old Caucasian male with glaucoma presented to dermatology with a 1½ year history of bright red, pruritic, eczematous, lichenified eyelids and persistent tearing. He had been treated by ophthalmology for presumed ocular rosacea with DesOwen cream, hydrocortisone cream, doxycycline, and tetracycline. Other medications included lubricating eye jelly, Xalatan Ophthalmic solution, levobunolol ophthalmic solution, aspirin, Metoprolol, Simvastatin, and Vitamins E and C.

Patch testing to our “standard” 64 antigens yielded a positive reaction to balsam of Peru. Notably, benzalkonium chloride, thimerosal and other preservatives were negative. A repeat open application test was positive to Xalatan (latanoprost) ophthalmic solution. A second session of patch tests was negative to 12 personal products and Xalatan vehicle (provided by the manufacturer) but strongly positive to Xalatan solution. Latanoprost, the active ingredient in Xalatan ophthalmic solution, is an ester prodrug analogue of prostaglandin F used to treat glaucoma. This is the first known reported case of allergic contact dermatitis to latanoprost.

ETHYLHEXYLZINC DITHIOPHOSPHATE, A NEW SENSITIZER IN CUTTING FLUID

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A 33-year-old non-atopic metal worker developed recalcitrant, work-related hand dermatitis. 3 patch test sessions were performed. In the series of oils and cutting fluids, coconut diethanolamide (cocamide DEA; 2+) provoked an allergic reaction. Two cutting fluids, i.e. an insoluble cutting oil (ICO) and a water mulsifiable semisynthetic cutting fluid (ESCF) used at work provoked allergic patch test reactions: ICO, 20%-10%, pet, 2+, and ESCF, 10%-1%, pet, 2+. A liquid soap used at work also provoked a 2+ allergic reaction (10% pet). The manufacturer informed that that the ESCF contains a cocamide DEA-related compound, namely Texamin PD 1 (Henkel KGaA, Düsseldorf, Germany) which according to the MSDS was a fatty acid polydiethanolamide (FAPDEA). In the 2nd patch test session the patient was patch tested with the live components of the ICO. One of the components, an extreme pressure (EP) additive (present at 2-5% in the ICO), provoked allergic patch test reactions in a dilution series in pet (1%-0.32%, 2+; 0.1%, 1+; 0.032%, negative). The manufacturer then informed us that the EP-additive used was contained 78% 2-ethylhexylzinc dithiophosphate (EHZDTP) and 22% mineral oil. For the 3rd patch test session we had obtained the components of ESCF. We also patch tested the patient again with EHZDTP (without mineral oil), which provoked allergic patch test reactions in a dilution series (1%-0.32%-0.1%-0.032%, 1+; 0.01%, negative). Only one of the components of ESCF, i.e. Texamin PD 1, provoked allergic patch test reactions (1%-0.32%, 2+; 0.1%, 1+; lower concentrations were not tested). 20 control persons were

negative on patch testing with 1% EHSDTP and Texamin PD 1. We have no come across earlier reports of allergy from EHSDTP.

INGREDIENTS AND ALLERGENIC POTENTIAL OF CELLULITE CREAMS

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Background: There is virtually no knowledge of the ingredients of cellulite creams in the dermatologic literature.

Ingredients: In the present study, ingredients of cellulite creams, the frequency of their use and whether the ingredients in cellulite creams has been reported to cause allergy were investigated. In the 32 products tested, 263 ingredients were used. On average each product contained 22 ingredients (range 4 to 31). Botanicals and emollients predominated; altogether 44 different botanicals and 39 different emollients were used in the 32 products. Caffeine, present in 14 products was the most common additive, apparently representing the "active" ingredient. In other respects the compositions of the products were similar to those of skin creams. All products contained fragrance.

Laboratory Investigations: The percentage of parabens ranged from 0.02 to 0.40%. The percentage of 2- phenoxyethanol ranged from 0.05 to 0.57%. No free formaldehyde was present in the products studied. The concentrations of parabens and phenoxyethanol were under the maximum authorized concentration, which is for one paraben 0.4%, 0.8% for a mixture of several parabens and 1% for 2-phenoxyethanol (The Cosmetic Directive 76/768/EEC).

Conclusion: In spite of the large number of substances used in cellulite creams their safety seems acceptable for most users. Because, however, one fourth of the substances used has been shown to cause allergy, the risk of adverse effects should be taken into account when using cellulite creams.

OCCUPATIONAL ALLERGIC CONTACT DERMATITIS FROM 2,2-BIS[4-(2-HYDROXY-3-METHACRYLOXYPROPOXY)PHENYL]-PROPANE (BIS-GMA)

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BIS-GMA is the most widely used prepolymer in dental acrylics. During 1985-1999 we had 13 patients with an allergic patch test reaction to BIS-GMA. We studied cross and concomitant sensitivity of these patients to other epoxy dimethacrylates (BIS-GA, BIS-EMA and BIS-MA) and diglycidyl ether of bisphenol A (DGEBA). All 13 patients with an allergic patch test reaction to BIS-GMA also reacted to DGEBA. 7 out of 10 patients with an allergic patch test reaction to DGEBA reacted to BIS-GMA. 4 of the 13 patients developed BIS-GMA allergy from dental composite resins. 6 of the 13 patients had apparently been sensitized from DGEBA and no exposure to BIS-GMA was known. One patient of the 13 patients had been sensitized from 2,2-bis[4-(2-hydroxy-3-acryloxypropoxy)phenyl]-propane (BIS-GA). 2 of the 13 patients had first been sensitized to DGEBA and then concomitantly to BIS-GMA. The sensitization to BIS-GMA in these

two patients was from a dental resin and a coating material, respectively. In conclusion, to find out the causative agent of allergic contact dermatitis in patients with allergic patch test reactions to BIS-GMA and/or DGEBA, patients with an allergic patch test reaction to DGEBA should be tested to BIS-GMA and other epoxy acrylates, and patients with an allergic patch test reaction to epoxy acrylates should be tested to DGEBA.

EFFICACY OF CONTACT ALLERGEN REPLACEMENT DATABASE (CARD) IN THE TREATMENT OF ALLERGIC CONTACT DERMATITIS SECONDARY TO TOPICAL SKIN CARE PRODUCT USE

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Objective: The purpose of this randomized, prospective study was to determine whether the use of CARD, an allergen replacement database, would improve the clinical outcome in patients with allergic contact dermatitis (ACD) related to their use of topical skin care products. As secondary endpoints, we evaluated health care provider time needed for patient education and patient satisfaction.

Methods: A total of 27 patients, with relevant patch-test positive results to allergens found in skin care products, were randomized and enrolled in this study performed at Mayo Clinic Scottsdale and Rochester. CARD is a tool that generates an extensive list of skin care products that are free of a given patient's allergens. After the completion of patch testing, one-half of the patients were given an individualized list of approved products generated by CARD in addition to traditional education. The remaining patients received only standard education. Clinical signs and symptoms were followed by a blinded dermatologist for 3 months. Additionally, the time required for the primary care dermatologist to educate patients was measured. Patients were also asked to rate the helpfulness of the product list.

Results: Regarding objective measures of disease activity and counseling time, no statistically significant differences ($p > 0.05$) between the CARD and non-CARD treatment groups were found. However, 91% and 100% of patients in the CARD and non-CARD groups, respectively, viewed the Allergen-Free Product List as either somewhat or very helpful in managing their contact dermatitis.

Conclusions: Although this small study with brief follow-up does not demonstrate faster or more complete resolution of ACD secondary to topical skin care products, CARD was received favorably by the population tested.

REPRODUCIBILITY AND THE ROLE OF EXPECTANCY IN NICKEL PATCH TESTS

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Allergens used for patch testing have shown variable reproducibility; data for nickel sulphate (NiSO_4) used in patch testing suggest a reproducibility of 80-95%. To further evaluate the reproducibility of NiSO_4 in patch testing and to assess the role of expectancy, patch testing was performed on 9 patients with a documented history of nickel allergy. Patches were applied to the lateral aspect of the upper arms; 1 arm received placebo (yellow petrolatum plus food coloring to match NiSO_4 color) while the other arm received NiSO_4 . In the first test, patients were told the true identity of each

patch. In the second test, performed 6 weeks later, patients were blinded to the true identity of each patch but were given expectancy on one arm. A positive reaction to the NiSO₄ patch was seen in both tests for 8 of the 9 patients, confirming the high rate of reproducibility.

In the blinded test, 4 patients exhibited slight to moderate reactions to the placebo patch versus 0 in the unblinded test. Thus, while patch testing with NiSO₄ is highly reproducible, the expectancy associated with placebo effect may play some role in the manifestation of cell-mediated (delayed type) hypersensitivity. Further study with a larger population is warranted to confirm this finding.

THE EXCITED SKIN SYNDROME: THE STUDY REALIZED IN 34 PATIENTS

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Objectives: 1) to determine the ESS's frequency in patients who underwent the contact tests; 2) to confirm the interference of the evolution time of the dermatitis in the ESS induction; 3) to determine differences among patients according to the loss index of positive tests; 4) to check, for each substance, the number of positive tests between the first and second application of the contact tests, comparing the results. The epicutaneous tests were carried out in the patients with hypothesis of contact dermatitis, during the period from February 1998 to July 2000. All patients were submitted to the standard series of contact tests, following an adequate methodology in order to avoid ESS formation. Those with two or more positive tests, where the substances did not correlate with each other, underwent the other test and were diagnosed with ESS when at least one positive test was lost.

Conclusions: 1) ESS was observed in 39/630 patients who underwent the epicutaneous tests, therefore the frequency of ESS was 6.2%. 2) The contact dermatitis of a long period of evolution favors ESS. 3) The polysensitivity favors ESS. 4) Among those patients with ESS, the parabens group, the perfume-mix and the thimerosal had more positive tests when tested near other substances mainly those with chemical affinity among them.

CROSS REACTIVITY AMONG EPOXY ACRYLATES AND BIS-F BASED EPOXY RESINS IN PATIENTS WITH BIS-A EPOXY RESIN SENSITIVITY

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We report a case of a hairdresser with ACD to epoxy resin who presented with perioral dermatitis after placement of temporary crowns composed of bis-GMA. Although epoxy resins and acrylates are recognized as potential allergens, ACD from epoxy acrylates are uncommon.

The study's objective was to evaluate the cross reactivity among various epoxy acrylates and resins used in the workplace, dentistry, and cosmetics in patients known to have ACD to epoxy resins.

Twenty patients were patch tested to 23 allergens consisting of epoxy acrylates, bis-A and bis-F based epoxy resins, and toluenesulfonamide epoxy resin. Patients also

completed a questionnaire concerning problems with dental work with composite restorative materials.

Nineteen of 20 patients (95%) showed sensitivity to standard bis-A epoxy resin. All patients (100%) reacted to at least one of the newer bis-F based epoxy resins. One patient with possible ACD to epoxy did not react with bis-A epoxy resin, but had a relevant positive reaction to bis-F based epoxy resin. Sixty-five percent (13/20) reacted to toluenesulfonamide epoxy resin. Thirty percent (6/20) showed cross reactivity with at least one of the epoxy acrylates. To date, only the patient in our case report had symptoms from the dental composite.

To our knowledge this is the largest series of patients with epoxy sensitivity patch tested with newer bis-F epoxy resins. These results may help educate patients about epoxy cross reactivity, nail polish allergy, and potential problems with composite dental restorative materials.

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SODIUM DIHYDROXYCETYL PHOSPHATE – A NEW COSMETIC ALLERGEN?

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A 41 year old woman was admitted with severe confluent oedematous eczema localized to the face, neck and hands developed over 5 days.

Prior to the onset of eczema she had used 3 different herbal moisturising creams. Patch tests with European standard series supplemented with topical products were positive for only one of the moisturising hand creams. Supplementy patch tests with all ingredients showed only one positive, a ++ reaction on day 3 and 7 to sodium dihydroxycetyl phosphate (SDP) 5% in petrolatum. Twenty consecutive controls were tested with SDP and 12 were negative while 8 showed +? at day 3, negative day 7. The patient was retested with a dilution series of SDP 2%-0.1% in aqua and had ++ reaction down to 0.5% and + to 0.1%. ROAT with 1% SDP in aqua was strongly positive after 3 applications with flare of face dermatitis.

SDP is the sodium salt of a complex mixture of phosphate esters of dihydroxycetyl alcohol and functions as a surfactant in the cosmetic formulation. Subsequent analysis revealed hexadecane 1,2-diol as one of the allergenic ingredients. However, more allergens are suspected to be present in the substance and compound allergy may be involved.

TELEMEDICINE IN OCCUPATIONAL DERMATOLOGY: FIRST EXPERIENCE IN RUSSIA

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The incidence rate of occupational skin diseases in Russia (about 2 registered cases per 1000000 workers per year) is now significantly lower than in other industrial countries

(0,5-1,9 cases per 1000 workers per year in European countries [TL Diepgen, PJ Coenraads, 1999]). It leads to the conclusion that now wide strata of Russian workers are really underserved in sphere of occupational dermatology, especially in distant regions.

To provide consultations of occupational dermatologist for as many workers of distant regions as possible, Research Institute of Hygiene and Occupational Pathology (Nizhny Novgorod, Russia) actively implements telemedical technologies. Since 1998 significant experience was accumulated in store-and-forward teledermatology, including distant evaluation of patch tests with chemical allergens. Since 1999 mainly ISDN videoconferences were used for teledermatological consultations and for distant education in occupational dermatology. The growing number of teleconsultations demonstrates great social demand for such services.

CONTACT ALLERGY TO SHELLAC IN MASCARA

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Reports of allergic contact dermatitis to eye make-up are infrequent. Allergens include preservatives, colors, antioxidants and binders. We report three cases of eyelid dermatitis caused by mascara shellac.

Three atopic women with eyelid dermatitis were patch tested to the standard screening tray of the North American Contact Dermatitis Group and their cosmetics. Each had positive reactions to their own mascara. Further tests with mascara ingredients were positive to shellac at concentrations between 5% and 20% in petrolatum. Pertinent negatives included Quaternium-15, other preservatives, fragrance and rosin. All three patients cleared with allergen avoidance and substitution. Only one of the 115 controls was positive to shellac at 20% in pet.

Shellac is a resinous material found in varnishes, insulators and cosmetics. It is produced by lac, a secretion from *Laccifer Lacca*. Only three cases of allergic contact dermatitis to shellac have been reported and we recommend a patch test concentration of 20% in petrolatum.

INVESTIGATION OF THE THRESHOLD FOR ALLERGIC REACTIVITY TO CHROMIUM.

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Abstract: In certain locations there appears to be a relatively large cohort of chromium sensitive individuals whose allergy cannot be explained by common causes. In particular this group includes Israeli housewives with persistent hand eczema and concomitant patch test positivity to chromium. The causation of their allergy has been linked with relatively high levels of chromium contamination in household products.

Objective: To study the definition of safe levels for household products.

Methods: 17 chromium allergic individuals were examined to determine their threshold for reaction under patch test and repeat open application test (RAOT) conditions.

Results: On normal skin the patch test threshold was 10 ppm chromium; in the presence of an irritant (sodium lauryl sulphate) the threshold was closer to 1 ppm, 2/17 subjects giving +1 reactions at 1 ppm. In the ROAT, 8/14 individuals failed to react to 50 ppm, whilst 3/16 reacted to 5 ppm. Interestingly there was very poor correlation between the patch test sensitivity and the ROAT sensitivity.

Conclusion: To ensure the majority of chromium allergic individuals do not suffer elicitation of their allergy and to limit the development of new chromium sensitive subjects, it is recommended that household products adhere to a previously published standard of a maximum limit of 5 ppm, with an ultimate target of 1 ppm contaminated by chromium.

INCIDENCE OF CONTACT ALLERGY IN A DANISH ADULT POPULATION

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In 1990 we patch tested 567 persons in a cross sectional study of a random sample of the 15-69 year old population living in the Western part of Copenhagen County (Denmark). In a 1998 follow-up 365 out of the 540 invited (68%) were patch tested again using the same method (TRUE-Test, one reading at day 2, only). In 1998 we found 37 incident cases (12%) with one or more positive patch tests. Among the 37 persons we found 20 cases (6%) of nickel allergy and 25 cases (8%) of contact allergy to one or more haptens other than nickel. The data indicate that female sex, young age and ear piercing (before 1990) were possible risk factors for nickel allergy. Contact allergy has a high incidence in the adult population.

ACD TO GLUTARALDEHYDE AND FORMALDEHYDE IN DENTAL PERSONNEL

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We previously reported an increased incidence of ACD to glutaraldehyde (GL) among health-care workers (HCW; 17.6%) compared to non-health care workers (NHCW; 1.9%) over a recent 5 year period. GL+ HCW were more likely allergic to formaldehyde (FO; $p < 0.001$), suggesting co-reactivity. All dental personnel evaluated were GL+. The current study will evaluate a cohort of 100 dental hygienists/nurses, with or without a history of skin disease, to determine: 1) The incidence of ACD to GL and FO; 2) Co-reactivity between GL and FO; and, 3) The instructions given dental personnel in the proper handling of sterilizing solutions.

To date, 52 volunteers have been enrolled. All were women, with a mean age of 36.0 yrs. and mean employment of 12.2 yrs. Two of 52 (3.8%) had a history of atopic dermatitis. 15 of the 52 (28.8%) had at least one atopic criterion. 48 (92.8%) were exposed to cold sterilizing solutions, but only 4/48 (7.7%) knew the name of the solution utilized or its contents. Among individuals exposed to sterilizing solutions, all wore the

same type glove utilized for examinations, which in the majority was latex. 2 of the 52 (3.8%) were clearly GL+, while a 3rd had an equivocal reaction to GL. None was FO+. Based upon this limited data to date, it appears that dental personnel are slightly more likely to be GL+ when compared to our historic NHCW population (3.8% vs 1.9%); however, this difference is not statistically significant ($p=0.36$). Given the high percentage of dental personnel utilizing potentially inadequate cutaneous barriers for exposure to sterilizing solutions, these preliminary findings are surprising. One possible explanation for the lower than anticipated reactivity to GL would be that the sterilizing solutions utilized did not contain GL. Attempts will be made to ascertain the precise nature of the solutions utilized by our cohort. At this time, no evidence of co-reactivity between GL and FO exists.

THE ROLE OF NITRIC OXIDE IN THE ETIOPATHOGENESIS OF ALLERGIC CONTACT DERMATITIS

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Allergic Contact Dermatitis (ACD) is an immunologically mediated inflammatory dermatosis. Nitric Oxide (NO) plays a role in the inflammation and immunity. Increased NO concentrations in the tissue samples of ACD patients have been reported. As far as we know there is no published study investigating the serum NO levels in ACD. In this study aiming to investigate the role of NO in the etiopathogenesis of ACD, blood samples of 19 patients with the disease were obtained and serum levels of nitrate / nitrite were measured before and after treatment and the results were compared. At the same time these values were compared with serum levels of nitrate / nitrite in 21 healthy individuals without any inflammatory disorder as the control group. Serum nitrate / nitrite levels of the patients with ACD before treatment were found to be higher than the levels after treatment of the disease. On the other hand serum levels of nitrate / nitrite in the control group were found to be lower than the levels before treatment. These results suggest a possible role of NO in the etiopathogenesis of ACD during the inflammatory phase.

VULVAR PRURITUS AND ALLERGIC CONTACT DERMATITIS

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Vulvar dermatitis is a common disorder seen in both the dermatology and gynecology settings. The local effects of heat, moisture, occlusion, and friction may increase the susceptibility to dermatitis. Furthermore, embarrassment of vulvar symptoms prompts many women to self-treat, creating a situation that favors sensitization and irritation. Patch testing is a useful tool to confirm suspicion of allergic contact dermatitis (ACD). The purpose of this study was to determine the frequency of allergic hypersensitivity as the cause of vulvar itching. The design of our study was to test the hypothesis that a standard battery of patch tests is insufficient to elucidate causative allergens. In addition

to the standard TRUE test, three additional batteries were used for patch testing: (1) preservatives (2) fragrances, and (3) corticosteroids.

Subjects were selected based on their history of vulvar pruritus of greater than 12 months duration. Pre-menopausal women over the age of 18 were eligible. A detailed questionnaire documented symptoms and prior treatments. Patch testing to the four battery trays was performed per standard protocol.

At this time, 9 out of the planned 30 patients have been evaluated. Results show 4 patients with positive allergens, all from the TRUE test exclusively, and none of which appear clinically relevant to their condition.

Our goal at the completion of this study is fourfold: (1) to have a greater understanding of the extent of self-medication in women with vulvar pruritus, and the specific agents that are being employed (2) to allow us to discern the frequency of developing an ACD from an allergen on the TRUE test battery in comparison to allergens found on the other three standard batteries (3) to provide the possible pilot data for developing a standardized vulvar patch test battery based on consistent patterns of positive allergens, and (4) to allow for the possibility of negative patch test results, in which case the dermatitis may be irritant or endogenous in nature, thus disproving the sensitization hypothesis.

PREVENTION OF IRRITANT CONTACT DERMATITIS BY PLANT FATS

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Irritant contact dermatitis (ICD) is a common occupational skin disease in the food processing industry among bakers, confectioners, and cooks. Since direct skin contact to raw food material cannot be avoided in many workplaces, integration of these substances in a preventive concept seems reasonable.

Therefore, we investigated the efficacy of pre-exposure application of 13 nutritious plant fats in the prevention of experimentally induced ICD in a panel of 20 healthy volunteers that was tested with a repetitive irritation test using sodium lauryl sulfate (SLS). Application sites were assessed clinically and by the use of bioengineering techniques (evaporimetry, chromametry, and corneometry).

Some fats, especially rape seed, soy, and four different palm fats showed a significant protective potential in comparison to a control field which had only been irritated. No fat enhanced SLS induced irritation. Since the protective efficacy of these fats may be structure related, detailed structure analysis of these fats was undertaken.

In conclusion, usage of nutritious plant fats with protective potential represents a new approach in the prevention of ICD at workplaces in the food processing industry. Further investigations under real work place conditions with these promising fats are warranted.

TYPE-IV HYPERSENSITIVITY TO BETAMETHASONE VALERATE AND CLOBETASOL PROPIONATE: RESULTS OF A MULTI-CENTRE STUDY

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Allergy to topical steroids may be delayed or masked by their ongoing use and may result in treatment failure or a worsening skin complaint. Seven centres of the British Contact Dermatitis Group conducted a prospective multi-centre study into the prevalence of contact allergy to topical betamethasone valerate (BV) and clobetasol propionate (CP), and an investigation into the most suitable concentration and vehicle for patch testing. A total of 1510 consecutive patients were tested to: BV 1% and 0.12% in petrolatum (pet); BV 1% and 0.001% in ethanol (eth); CP 1% and 0.25% pet; CP 1% and 0.001% eth. Eighteen patients (1%) reacted to either BV or CP. Eleven patients (0.7%) reacted to BV and 14 (0.9%) to CP. Three of these were identified by tixocortol pivalate or budesonide as contained in many standard series. A 1% dilution in ethanol found 64% of the positive reactions to BV or CP.

Consideration should be given to routinely testing to BV 1% eth and CP 1% eth, as both steroids are frequently used in the treatment of eczema and as most sensitized patients are not identified with currently used markers of steroid allergy. If these tests are negative, but an allergy is suspected, the patient should be either tested intradermally or patch tested to dilutional series of BV or CP in ethanol and petrolatum.

SKIN PRICK TESTS DO NOT SEEM USEFUL IN SCREENING FOR FARMERS' OCCUPATIONAL DERMATITIS CAUSED BY PLANT DUSTS AND ANIMAL EPITHELIA

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The aim was to evaluate skin prick test (SPT) in screening for farmers' occupational dermatitis. 73 farmers were questioned about skin symptoms when exposed to grain, straw, hay, cow, swine, and horse. Subsequently, they were skin prick tested with grain dust, straw dust, hay dust, cow, swine, and horse epithelia. Predictive values: positive (PPV) and negative (NPV) for SPT with each allergen were calculated. The patient's history, verified by a dermatologist, was the reference.

Results: 4 farmers complained of eczema and further 4 of pruritus when exposed to the mentioned allergens, 14 reacted to one or more allergens on SPT. The predictive values for SPT with grain dust were: PPV=0, and NPV=0.94; straw dust : PPV=0, NPV=0.97; hay dust: PPV=0.2, NPV=0.94; cow and swine epithelia both PPV=0, NPV=1.0; and for horse epithelium PPV=0, NPV=0.96.

These data suggest that SPT is not an appropriate screening method for farmers' occupational dermatitis caused by large-particle allergens.

CHRONIC BERYLLIUM DISEASE

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Chronic beryllium disease (CBD) is a cell mediated granulomatous hypersensitivity to beryllium, usually diagnosed by: (1) a history of beryllium exposure; (2) positive blood and/or bronchoalveolar lavage (BAL) beryllium (Be) lymphocyte proliferation test (LPT). Patch tests are infrequently used; and (3) granulomas on lung biopsy.

Reports of CBD of the skin are rare. A 29-year-old beryllium furnace operator for 30 years had a 4-month history of violaceous, lichenoid papules on his arms and legs. Biopsy showed epithelioid cell granulomas. Blood and BAL Be LPT were positive. Lung biopsy showed non-caseating granulomas and prednisone, 40 mg qod, for the pulmonary disease significantly cleared the skin lesions after one month. Evaluation of additional beryllium workers is needed to determine if cutaneous lesions and sensitization to beryllium causes or predicts pulmonary sensitization or CBD. The role of patch testing in occupational CBD needs clarification.

RELIABILITY OF PATCH TEST WITH DERMATOPHAGOIDES MIX 20%

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Introduction: AD is a chronic disease which develops appearances and which etiopathogeny has not been totally explained. From the moment it was demonstrated that it possible to produce positive epicutaneous tests to aeroallergens in patients with AD, numerous studies have been carried out in order to establish the diagnose value of these tests.

Method: We have carried out a study on sensitivity and specificity of Chemotechnique's Dermatophagoides mix 20% (Dph 20) in patients with AD. We have applied the allergen to 101 patients from the Unit of Cutaneous Allergy, 23 of which were diagnosed AD. Results: Dph 20 resulted the second allergen regarding frequency (21%), after nickel sulphate (25%) in the group without AD. These patients were mainly female (59%), housewives (36%) with eczema on the hands (72%). Regarding the patients with AD, they often had family (74%) or personal (67%) antecedents of atopy, as well as other manifestations in the form of rhinitis (26%), conjunctivitis (17%) and asthma (4%). Epicutaneous tests with Dph 20 in this group only had positive reactions in 57% of the cases. The study shows a sensitivity and specificity of patch test with Dph 20 of 56% and 66% respectively.

Conclusions: Therefore, we think that an AD diagnose must be currently based on the clinical of the patient after a specialized dermatologist's criteria, and that patch test with Dph 20 is an option, but not the definitive one, for the diagnosis of the disease.

Keywords: atopic dermatitis, patch test, dermatophagoides, aeroallergens.

OCCUPATIONALLY INDUCED PYODERMA GANGRENOSUM

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A 56-year-old machinist presented with a few month history of recurring ulcers of the hands following minor abrasions and cuts at work. Cultures from his wounds and the metal working fluids used at his work grew a *Pseudomonas* species. Multiple debridements and antibiotics were generally not effective. Because of treatment failure as a pyoderma, a biopsy from peri-lesional skin was performed and revealed pseudocarcinomatous epithelial hyperplasia and abscess formation consistent with pyoderma gangrenosum. With the new diagnosis of pyoderma gangrenosum, prednisone was initiated and quite effective in controlling his disease process. Dapsone was

instituted as a steroid sparing agent, but he did not tolerate it secondary to gastrointestinal distress.

He obtained a job as a security guard to avoid hand trauma and was symptom free for five years. After changing jobs to a maintenance and cleaning person at a nursing home, he had recurrent, occupationally induced pyoderma gangrenosum on the left hand from an abrasion exposed to concentrated cleaning product. The recurrent pyoderma gangrenosum responded well to prednisone and he was advised to wear protective clothing or change jobs again to avoid trauma and exposure to harsh chemicals.

We believe the patient's recurrent ulcers represent pyoderma gangrenosum based on the classic clinical exam, histology, failure to respond to debridement and antibiotics, and the rapid clearing with steroids. The fact that his pyoderma gangrenosum was precipitated by trauma at work make this an interesting occupational dermatosis.