

Abstract N°: 30**Occupational dermatoses among workers in high-risk occupations in selected participating companies**

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Introduction & Objectives:

Occupational dermatoses (OD) is a prevalent occupational disease leading to productivity loss and decreased quality of life among workers in the fields of manufacturing, construction and agriculture. Workers in high-risk occupations and marginalized sector are at a particular risk. In the Philippines there has been an increasing trend of occupational dermatoses however sufficient data is still lacking. This study determined the prevalence of occupational dermatoses in high-risk occupations, their sociodemographic characteristics, work characteristics, relevant clinical history, cutaneous workplace exposures, and their association with OD occurrence.

Materials & Methods:

A descriptive cross-sectional study was carried out. Purposive sampling was utilized (n=209). Variables were gathered using a validated SAQ and dermatologic assessment of workers was done. Association of eczema with independent variables was determined using chi-square test at 95% confidence level and alpha=0.05.

Results:

The overall prevalence of skin eczema was 44 (21.05%). Significant correlation with OD occurrence was seen in workers in the production area and labour jobs (p: 0.0082), with primary education (p: 0.0086 OR:3.74), chemical hazard exposure (p: 0.000 OR: 3.96), paint exposure (p: 0.000 OR: 3.96) and hand washing of 11-20 times per day (p: 0.0214 OR:3.2).

Conclusion:

Eczema prevalence result was comparable with other top occupational diseases as reported by the PSA and is consistent with foreign occupational studies. Use of more detailed questionnaires validated by the investigators could lead to higher rates of detection of occupational dermatoses. Skin health programs would be of benefit among the workers studied, and would allow design of preventive, curative, and rehabilitative skin programs.

Abstract N°: 266**Frequency of use for consumers is not suitable for representing exposure of hairdressers: Results of a review on the differences between hairdressers and consumers in skin exposure to hair cosmetic products**

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Introduction & Objectives: Hairdressers are at high risk of developing occupational hand eczema. Risk assessment of non-food consumer products, such as cosmetics and their ingredients, consider the exposure of a 'common consumer', which does not account for occupational exposure of hairdressers. As result, serious safety concerns about occupational exposures may be raised. The purpose of this review is to compare the frequency of exposure to various types of hair cosmetic products among hairdressers and consumers.

Materials & Methods: Literature searches were performed in February 2021. The time period from 1990 to 2020 was taken as eligible publication period. We systematically searched for ((Hairdressers* OR Hairdressing apprentice*) AND (skin) AND (exposure*)) in Pubmed/Medline and Web of Science–Core Collection (WoS).

Results: Literature searches for this review yielded a total of 229 articles. 7 publications were ultimately included. Within the 7 reviewed studies, data on the 12 procedures alongside with concomitantly used product types were available, of which most of the identified tasks are performed exclusively by hairdressers (i.e., cutting wet hair a) without previously conducted colouring service and b) after previously conducted colouring service, highlighting hair (mostly using bleach with 6-9% hydrogen peroxide) and lowlighting hair (mostly using oxidative hair colour with 6% hydrogen peroxide) using (aluminium) foil, perming hair using waving/permings lotions (acid, alkaline, and exothermic perms), and colouring eyelashes and/or eyebrows with oxidative hair colour using mostly 3% hydrogen peroxide). The comparative analysis showed that – dependent on the task – hairdressers were exposed 4 to 78 times more than consumers regarding a wide spectrum of hair cosmetic products used in the daily working life ranging from shampoo, conditioner, oxidative and non-oxidative hair colours, and bleaching agents. The highest frequency was found for colouring hair with oxidative hair colour (Figure 1).

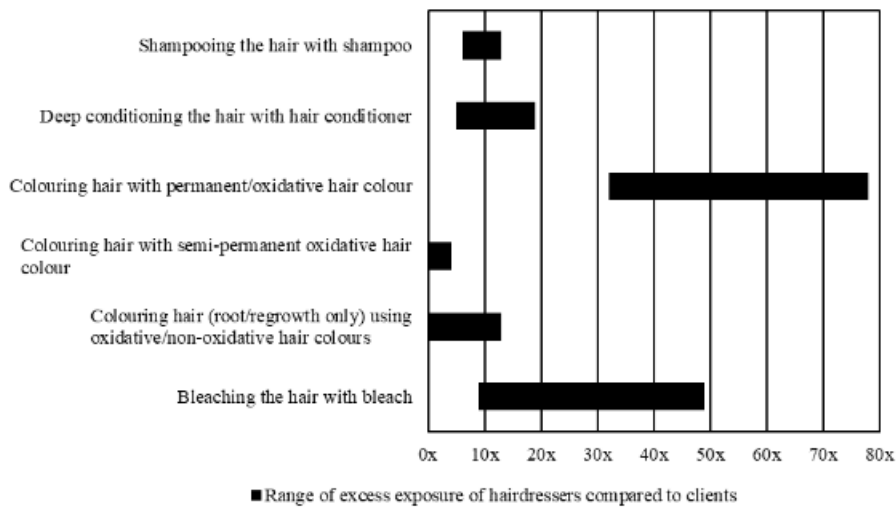


Figure 1: Factor by which hairdressers are higher exposed than consumers (i.e., *excess exposure factor*) whilst conducting regular hairdressing activities; calculation formula: (frequency of exposure for hairdressers + frequency of exposure for consumers) / frequency of exposure for consumers

Conclusion: The results of the present analysis imply that an assumed frequency of use for consumers is not suitable for representing exposure – and with it, morbidity risk – of hairdressers. Higher exposure leads to a greater risk of skin irritation and sensitisation, which consequently also has ramifications regarding systemic exposure *via* skin. Current regulations do not adequately address the occupational risks linked to the use of cosmetic products in hairdressers. A reconsideration of present risk assessment practices should thus be prompted.



Abstract N°: 961**Results of a systematic review and meta-analysis on allergic contact dermatitis caused by 2-hydroxyethyl methacrylate and ethyl cyanoacrylate contained in cosmetic glues among hairdressers and beauticians who perform nail treatments and eyelash extension as well as hair extension applications**

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Introduction & Objectives: Current cosmetic regulations focus primarily on protecting consumers, not the professional user who is subjected to a partly different, and certainly more intense exposure to hazardous substances. The present systematic review aims to compile and appraise evidence regarding skin toxicity of 2-hydroxyethyl methacrylate (HEMA; CAS no. 212-782-2) and ethyl cyanoacrylate (ECA; CAS no. 7085-85-0) contained in cosmetic glues used among hairdressers and beauticians who perform nail treatments and eyelash extension as well as hair extension applications.

Materials & Methods: This systematic review followed the PRISMA 2020 recommendations for reporting systematic reviews and meta-analysis. Eligibility criteria for studies to be included in the systematic review are reported following the PECOS scheme adapted from the CRD's (Centre for Reviews and Dissemination) guidance for undertaking reviews in health care. Systematic searches were conducted within the electronic databases Pubmed/Medline and Web of Science–Core Collection (WoS). Meta-analysis was conducted where quantitative pooling was feasible.

Results: 6 publications were eligible for this systematic review. Figure 1 presents a forest plot depicting the risk of contact allergy to HEMA of hairdressers and beauticians who perform nail treatments and eyelash extension as well as hair extension applications vs. comparators/controls. In this meta-analysis, 2 studies were included which provided data about hairdressers and beauticians who perform nail treatments and eyelash extension as well as hair extension applications as well as comparators/controls. The pooled risk ratio is 8.47 [95% CI 4.70, 15.27]. Results for ECA are lacking.

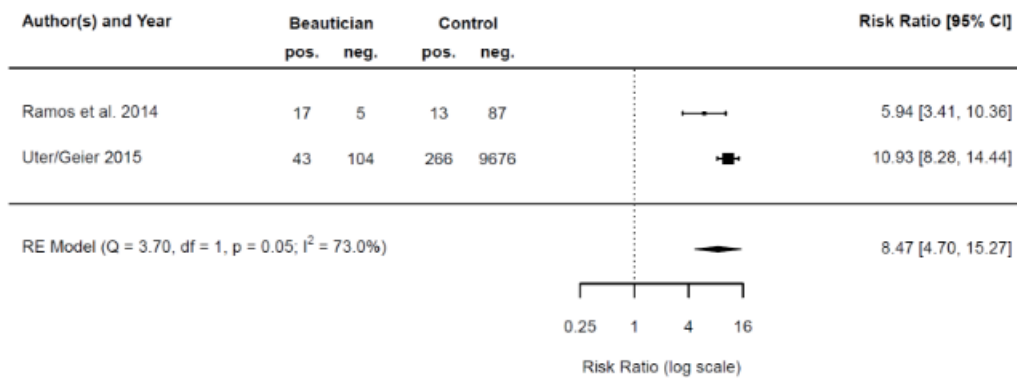


Figure 1: Forest plot regarding the risk ratio of hairdressers and beauticians who perform nail treatments and eyelash extension as well as hair extension applications vs. others/non-hairdressers and non-beauticians concerning contact allergy to HEMA. The controls comprise: other patch test patients patch tested with a special acrylate series, including consumers as well as occupationally exposed individuals

Conclusion: Meta-analysis revealed that hairdressers and beauticians have a 9-fold increased risk of developing contact allergy to HEMA compared to controls who are not hairdressers and beauticians. It seems necessary that prevention initiatives are put together to educate hairdressers and beauticians about the risk that handling cosmetic glues – especially without suitable protection – can entail. Further, the present systematic review clearly shows that – regarding contact allergy to acrylates – it is not appropriate to apply risk assessment for consumers to hairdressers and beauticians who occupationally handle cosmetic glues. The existing regulations do not adequately address occupational risks for hairdressers and beauticians connected with the use of acrylate-containing cosmetic substances and need reconsideration.



Abstract N°: 1319**Allergic contact dermatitis to Mexican kingwood rifle cheek piece in rifle shooting athlete**Suzanne Cheng^{*1}, Sophie Carrie Shan Cai¹, Tricia Chong¹, Anthony Goon¹, Yung Hian Leow¹¹National Skin Centre, Singapore, Singapore**Allergic contact dermatitis to Mexican kingwood rifle cheek piece in rifle shooting athlete****Introduction & Objectives:****Materials & Methods:****Results:**

We report a case of allergic contact dermatitis (ACD) to Mexican kingwood rifle cheek piece in a 24-year-old non-atopic female national rifle shooting athlete. She presented with a one-year history of itchy rashes on her right cheek. She would rest her cheek onto the rifle cheek piece whilst aiming during shooting practice. Two different materials were used for these cheek pieces: wood for indoor rifles and plastic for outdoor ones. The wooden cheekpieces were coated with shellac to make them water-resistant. Erythematous scaly patches with a sharp demarcation were noted on her right lower cheek corresponding to the shape of the outdoor rifle cheek piece made of Mexican kingwood. The rashes would improve when she was away from indoor shooting practice or covered the cheek piece with a black rubber pad, preventing direct skin contact with it. She did not experience any issues with the plastic rifle cheek piece used for outdoor shooting. She denied any other new contactants. Patch testing was performed to a modified European standard series (Chemotechnique Diagnostics), Mexican kingwood "as is" (shavings from varnished and unvarnished indoor rifle cheek piece), plastic "as is" (shavings from outdoor rifle cheek piece), black rubber "as is", commercial shellac, and personal shellac varnish in 1% and 10% petrolatum. Positive results were observed to varnished and unvarnished Mexican kingwood (+/- on day 3 and + on day 7) which were of present relevance. ACD to the Mexican kingwood rifle cheek piece was diagnosed and the patient was advised to find alternate wood for the cheek piece. Mexican kingwood (*Dalbergia congestiflora*) is a dense true rosewood used to make fine furniture, musical stock and specialty articles. There are no known cases of ACD to Mexican kingwood in the literature. However, few cases of ACD to cocobolo wood (*Dalbergia retusa*) have been reported, with strong reactions elicited from patch testing to the cocobolo wood and main sensitizers of cocobolo including dalbergiones and obtusaquinone as identified from thin-layer chromatography. We suspect our patient was likely sensitized to the underlying Mexican kingwood rifle cheek piece as the protective shellac coating became damaged from sweat and friction over time, leading to direct skin contact with the exposed wood and sensitization. ACD can develop in athletes who use equipment made of tropical woods and an index of suspicion should be raised when rashes develop in contact with the wooden equipment, even after years of usage.

Conclusion:

Abstract N°: 1368

A Case of Occupational Contact Dermatitis in a Male Construction Worker.

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Introduction & Objectives:

Occupational contact dermatitis is a commonly encountered occupational disease and is associated with significant morbidity. Rubber is a common occupational allergen and may be overlooked as a sensitising agent in workspaces outside of healthcare.

A non-atopic male in his 20s presented with a four year history of a pruritic eruption affecting the hands and face. The rash developed within a year of changing jobs to work in construction. He reported handling materials including cement, sand, wires and rubber. There was an occupational predisposition for worsening symptoms and the rash would improve on holiday. On examination he had an eczematous rash on the dorsum of his hands and wrists which appeared lichenified. There were additional erythematous patches on his forehead and neck, with some hyperpigmentation around both eyes.

Materials & Methods:

RAST testing, IgE and routine blood tests were negative.

Patch testing was carried out with European standard series as well as an additional rubber series. The results revealed: Thiuram/carba mix (+), colophony (+), caine mix (+) from the standard series. 1,3 diphenylguanidine and dipentamethylenethiuram tetrasulphide were positive in the rubber series.

Results:

The patch test results indicated rubber allergy and the patient was counselled on avoidance of rubber with rubber-free and accelerator-free gloves.

Conclusion:

The patient was tested against the standard series and a rubber series which demonstrated strongly positive results to several compounds. There should be a low threshold to investigate with the additional rubber series to exclude allergy to rubber and rubber accelerators. This case clearly elucidates the importance of considering occupational atopic dermatitis, in high risk groups such as construction. This highlights the value, once the suspicion of contact allergy has been raised, of testing for a broad range of potential contact allergens. As in this case, the patient had daily contact with many potential allergens and irritants (for example, potassium dichromate which is found in cement, epoxy and chrome plated objects) however the culprit was found to be rubber.

Once diagnosed, patients should be counselled on rubber avoidance. However, this can be challenging as rubber free gloves may be difficult to procure and common alternatives such as nitrile gloves can contain rubber accelerators. Furthermore, it may be challenging for patients with rubber allergy to find robust, durable work gloves which offer enough protection but do not contain rubber or rubber accelerators. Patients may be advised to wear cotton gloves underneath their work gloves to create a barrier, however this is not always practical.

One study which sought to find the associated morbidity of occupational dermatitis in construction workers

estimated that it could be affecting as many as 1 in 5 workers. The downstream economic and social effects of this are significant as in some cases workers need extended periods of time off work to recover. This case highlights the importance of considering and investigating occupational exposures as a cause of contact dermatitis.

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Abstract N°: 2045**The availability of personal and environmental protection requirements among Danish hospital cleaners in relation to occupational hand eczema**

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Introduction & Objectives:

Hospital cleaners are at risk of developing occupational hand eczema (OHE). The aim of this study was to investigate the availability of personal and environmental protection requirements among Danish hospital cleaners in relation to OHE.

Materials & Methods:

Hospital cleaners at three different hospitals in Denmark were invited to participate in the following self-report questionnaire-based study.

Results:

234 cleaners were invited to participate. Of these 224 (response rate=96%) agreed to take part. Protective gloves were available in all hospitals, with the majority of cleaners (94.6%) reporting that they had access to them. However, 5.4% of the cleaners had no access to any. Cotton gloves were less commonly available, with only 37.9% of cleaners reporting that they had access to them, and 62.1% had no access to any. Emollient cream was also not consistently available, with only 78.1% of cleaners reporting that they had access to it, while 21.9% had no access to any.

Conclusion:

Our findings suggest that personal and environmental protection requirements in relation to OHE among Danish hospital cleaners are not widely available. Improving this could help to promote better cleaning practices and decrease the risk of developing OHE among professional hospital cleaners.



Abstract N°: 2056**The self-reported impact of occupational hand eczema on the working abilities of Danish hospital cleaners**

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Introduction & Objectives:

Hospital cleaners are at risk of developing occupational hand eczema (OHE). The aim of this study was to investigate the self-reported impact of OHE on the working abilities of Danish hospital cleaners.

Materials & Methods:

Hospital cleaners at three different hospitals in Denmark were invited to participate in the following self-report questionnaire-based study. The cleaners were asked to rate their working abilities on a scale ranging from 0 to 10, where 0 indicates "absence of working abilities" and 10 indicates "optimal working abilities".

Results:

234 cleaners were invited to participate. Of these 224 (response rate=96%) agreed to take part. 11.6% (n=26) of the study population reported having had OHE in the last 12 months. The absence of working abilities was significantly more reported by cleaners with OHE compared to those with no OHE. Those with OHE had significantly experienced more unscheduled absences from work compared to those, who did not suffer from OHE.

Conclusion:

Our findings suggest that OHE can have a significantly negative impact on the working abilities of Danish hospital cleaners. These findings highlight the importance of developing strategies to support affected employees and accommodate their needs in the workplace.



Abstract N°: 2062**The burden of gloves in healthcare workers – when PPE becomes the enemy**Shi Yu Derek Lim^{*1}, Suzanne Wei Na Cheng¹¹National Skin Centre, Singapore, Singapore**Introduction & Objectives:**

Allergic contact dermatitis (ACD) to rubber chemicals, especially rubber accelerators, is of significant occupational relevance. We report a case to draw attention to the burden of rubber-related ACD in healthcare workers.

Materials & Methods:

A 32-year-old surgical house officer, with a past medical history of allergic rhinitis and eczema, and a previous positive patch test to rubber accelerators, was referred to our Joint Occupational Dermatoses Clinic for 1 year of itchy rashes affecting both hands. His rashes had first begun in his final year of medical school, and resolved, but recurred upon starting his surgical rotation three months prior to consultation. His work involved scrubbing into the operating theatre, during which he used rubber gloves despite his known allergy due to a lack of available alternatives. He had to take seven days off work due to his condition, and reported a 50% improvement in his rashes on his days off. Aggravating factors for his condition included latex and nitrile gloves, chlorhexidine wash, iodine wash and alcohol hand rubs. Examination revealed scaly erythematous plaques over the dorsum of his hands, worst over his metacarpophalangeal joints and with a sharp cut off at his wrists. His palms were spared.

Results:

Patch testing to the standard, rubber, cosmetic and medicament series, own gloves, and hand washes demonstrated positive reactions to thiuram mix, carba mix, paraphenylenediamine (PPD) mix, his own sterile nitrile gloves (all of present relevance) and sodium metabisulfite (exposed relevance). Skin prick tests to a variety of his own gloves were negative. He was diagnosed with occupational skin disease, with allergic contact dermatitis to rubber chemicals in rubber gloves and to PPD mix. He was advised to avoid direct contact with rubber products where possible, and to consider specialties with a less heavy procedural focus.

Conclusion:

The renewed focus on personal protective equipment (PPE), including gloves, in recent years, means that healthcare workers with rubber-related ACD face significant occupational challenges and impediments to their professional aspirations, with limited feasible alternatives readily available. Accelerator-free gloves may be considered in cases of rubber accelerator allergy, though accurate product labelling, contamination in the production process and the presence of other reported allergens are issues requiring attention.



Abstract N°: 2064

Is the use of extended (Meth) acrylate nail series justified? characterization of acrylate allergy in a tertiary medical center

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Introduction & Objectives:

Acrylates are ubiquitous and used in various products such as glues, coatings, inks, paints, dental prostheses, acrylic nails, mascara and medical adhesives. The clinical presentation of allergic patients usually involves dermatitis of the fingertips, hands, face and the oral cavity.

The combination of the potent sensitization potential of acrylic monomers with their widespread exposure, renders acrylates a significant etiologic factor in both occupational and non-occupational contact dermatitis.

Acrylic nails are known as the leading cause of occupational acrylate allergy and the risk for 2-HEMA allergy was found to be 9 times higher among beauticians. Subsequently, 2-HEMA was added into the European Baseline Series in 2019. While 2-HEMA is widely considered a reliable marker of acrylate ACD, the addition of a standardized extended acrylate series was suggested to improve the diagnosis of acrylate allergy.

The potential added value of the acrylate series tray to acrylate ACD detection has not been established. Thus, we aimed to assess the additional benefit of testing the "(Meth) Acrylate - Nails Series" (ANS) and to identify individuals who require the addition of the extended acrylate series.

Materials & Methods:

We conducted a retrospective analysis of medical records from 3938 patch tested patients between June 2013 and July 2022.

Patients with suspected acrylate ACD were concomitantly tested with both the EBS and ANS, obtained from Chemotechnique Diagnostics®, Vellinge, Sweden.

The following data, according to MOAHLFA index were retrieved from the files of patients: Male, Occupational dermatitis, Atopic dermatitis, distribution of the rash (hand, leg, or facial dermatitis) and age.

Results:

Among the 3938 patients who underwent test patching, 504 were tested with ANS, and 167 (33.1%) of these patients tested positive for at least one acrylate. The most common hapten was 2-HEMA (85%), followed by hydroxypropyl methacrylate (80.8%) and ethylene glycol dimethacrylate (79.0%). The majority of patients who tested positive had occupational exposure (62.9%), most of them being beauticians (84.8%). Further analysis revealed that patients who displayed an allergic reaction to acrylates but tested negative for 2-HEMA had significantly higher rates of male patients and occupational exposure ($p < 0.05$). In our cohort, 3.6% of all patch-tested patients were found to be positive for 2-HEMA, with a notable rise in recent years.

Conclusion:

In conclusion, testing 2-HEMA as part of the present EBS, can detect most of the patients affected by acrylate ACD

(85%). The addition of HPMA, EGDMA or both, particularly in the case of nail salon beauticians, can further enhance diagnostic accuracy to 97%. Therefore, although our findings require further validation through additional studies in different cohorts, we suggest that the additive value of the extended ANS is limited, even when occupational acrylate allergy is suspected. However, the use of the entire tray may be useful for patients with certain less common exposures, such as those in orthopedic surgeries and industrial workers. Moreover, the increased prevalence of acrylate allergy and the high rate of positivity among beauty industry employees warrant stricter regulations and consideration of the implementation of preventive measures to minimize occupational acrylate allergy.

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Abstract N°: 2161**Pediatric contact dermatitis, a 10-year multicenter retrospective study.**Danny Daniely*¹, Danny Slodownik¹¹Tel aviv medical center, Dermatology and venerology, Tel aviv, Israel**Introduction & Objectives:**

While allergic contact dermatitis (ACD) is relatively common in the adult and pediatric populations alike, few studies describe the special features of contact sensitization among the Israeli pediatric populations, none of them is multicenter. Our study aims to describe and analyze patch test results and trends in four tertiary care centers between 2012- 2022.

Materials & Methods:

We assessed the results of 357 patch tests performed on children 0-18 years old between 2012 and 2022 in designated clinics in four tertiary medical centers. All patients were tested using the European baseline series and additional series as clinically indicated. We assessed the demographic features, atopic features, and influence, as well as the main allergens to cause sensitization and allergic contact dermatitis among the pediatric population.

Results:

69% of the study population were females, mainly 12-18 years old. 35% of the study population were previously diagnosed with atopic dermatitis, and 57% had an atopic diathesis. Females were more commonly sensitized ($p<0.05$). Patients without atopic dermatitis were more commonly diagnosed with ACD and had more reactions on patch test ($p<0.05$). The most common allergens to cause ACD are preservatives and metals, as previously described, however, acrylate sensitivity is an emerging group that hasn't been described among the Israeli pediatric population in previous studies. Fragrance mix 2 and Mroxylon pereirae are relatively rare allergens among the Israeli pediatric population, while linalool hyperoxide might be considered an emerging allergen. Methylisothiazolinone causes ACD more frequently among patients without atopic dermatitis ($p<0.05$).

Conclusion:

Among the Israeli pediatric population, ACD is more common in females without atopic dermatitis. Acrylates become a common culprit and should be included in baseline series. Patients with atopic dermatitis are less frequently sensitized by Methylisothiazolinone.

Abstract N°: 2675

A programme for prevention of foot dermatoses is effective in patients with work-related skin diseases: results of a prospective cohort study

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Introduction & Objectives:

Foot dermatoses (FD) are common in patients with work-related skin diseases (WRSD). However, in contrast to programmes for prevention of hand dermatoses, similar interventions are missing for FD. Therefore, a programme for prevention of FD based on health education and selection of appropriate footwear was developed. The objective of this study was to evaluate the effectiveness of this programme in patients with WRSD.

Materials & Methods:

A prospective cohort study (OCCUPES) comprising 231 patients with WRSD and FD participating in the programme was conducted (pre-post design). The skin was examined at baseline and questionnaires were completed at baseline and after 3 and 12 months. Assessments included occupational footwear, foot care, disease course, symptoms, and health-related quality of life.

Results:

FD mainly consisted of foot eczema (75.8%) and were often long-lasting with a high degree of work absenteeism, quality of life impairment, itch and pain. A work-related cause of FD was considered likely in 60 patients (26.0%) and associated with male sex ($P=.012$), sweating in footwear ($P=.004$) and wearing of safety footwear ($P=.013$). Response to follow-ups was $> 70\%$. Preventive behaviour to reduce exposure to moisture caused by sweating had improved, including an increased use of functional socks and changing footwear and socks during one work shift (all $P<.001$). Complaints about occupational footwear, such as sweating and exposure to moisture/wetness, decreased. Improved FD were reported by $> 60\%$ while quality of life significantly increased. After one year, foot symptoms were less frequent, including itch ($P=.009$), pain when walking ($P=.005$), pain in rest ($P=.015$), and smell ($P=.001$). The programme received very good ratings by the participants.

Conclusion:

The intervention was effective in improving occupational footwear, foot care and preventive behaviour while reducing the disease burden of FD. Hence, its implementation in the general care of patients with WRSD is suggested.



Abstract N°: 2908**Contact Sensitivity to Preservatives: Frequency of Sensitization to 10 Common Preservatives 2012-2021**Suzanne Cheng^{*1}, Hui Mei Cheng¹, Anthony Goon¹, Yung Hian Leow¹¹National Skin Centre, Dermatology, Singapore**Introduction & Objectives:**

Preservatives are chemicals ubiquitous in cosmetics, skin care and personal care products used for prevention of microbial contamination.

The aim of this study was to identify trends in preservative contact allergies from 2012 to 2021.

Materials & Methods:

Retrospective analysis of all patients with suspected contact dermatitis who underwent patch testing to the 5 preservatives within the modified European standard series and 5 preservatives within the special series between January 1, 2012 to December 31, 2021 was performed. Patch tests were performed using Finn chambers on Scanpor tape. Test materials were provided by Chemotechnique Diagnostics, Sweden. Reading of the test results was performed according to the ICDRG (International Contact Dermatitis Research Group) grading by one of a dermatologist trained in this sub-specialty. A 1+, 2+ or 3+ reading at day 3 and/or 7 was interpreted as a positive reaction. Descriptive analysis was performed for all variables. Fisher exact test was used to detect the difference in the frequency of contact allergy between the current study cohort and the preceding 6 years. Significance was assessed at a level of 0.05.

Results:

4585 patients were tested to preservatives in the standard series. Sensitization frequencies were larger than 1% for parabens (1.70%), methylchloroisothiazolinone/methylisothiazolinone (1.40%) and quaternium 15 (1.16%). Sensitization frequencies for methylbromoglutaronile and formaldehyde were lower at 0.74% and 0.18% respectively. The sensitization frequencies for 2-phenoxyethanol, diazolinylurea, bronopol, imidiazolidinylurea and DMDM hydantoin were less than 1%. In comparison with sensitization frequencies from 2006-2011, only methylchloroisothiazolinone/methylisothiazolinone showed an increase in sensitization frequency. Two thirds of patients who had a positive patch test were associated with dermatitis of the face, neck and/or hand dermatitis. 20% of positive patch test results were initially negative or equivocal but became positive only at day 7.

Conclusion:

In addition to parabens, methylchloroisothiazolinone/methylisothiazolinone is becoming an increasingly common cause of allergic contact dermatitis. Dermatitis of the face, neck and/or hand is an important clinical clue in the consideration of allergic contact dermatitis to preservatives. Late reactions are common in this entity and day 7 readings are important for their detection.



Abstract N°: 2951**Systemic contact dermatitis to formaldehyde released from the Heated tobacco product: a case report**Oleg Nitochko*¹¹Odesa National Medical University, Dermatology and Venereology, Odesa, Ukraine**Introduction & Objectives:**

Hand eczema (HE) is a common inflammatory skin disease that can significantly affect a patient's quality of life. The etiology of HE is multifactorial and encompasses genetic and environmental factors (irritants, allergens). For effective management and preventing relapses of HE, along with prescribing appropriate treatment and skin care, it is crucial to avoid clinically relevant allergens.

Systemic contact dermatitis (SCD) is a skin condition in which an individual, sensitized to an allergen via the skin, subsequently reacts to the same allergen or a cross-reacting allergen through systemic routes such as oral, intravenous, intramuscular, inhalational, transmucosal, or transcutaneous exposure.

Materials & Methods:

We report on a woman with HE who experienced an exacerbation of eczema after smoking a heated tobacco product, with a polymer-film filter known to be a source of formaldehyde cyanohydrin.

Results:

A 33-year-old female dentist with recalcitrant HE presented. The patient was patch-tested with the European baseline series and sensitization to formaldehyde was established. We ruled out all possible sources of formaldehyde in her home and work environment, but could not identify any sources. After thoroughly reviewing her anamnesis, we discovered that she periodically smoked a heated tobacco product known as a possible source of formaldehyde, which is released from the polymer-film filter during heating. Since the patient refused to quit smoking, we proposed that she switch to cigarettes, and her eczema rapidly resolved with appropriate treatment.

Discussion

SCD refers to the delayed type hypersensitivity (type IV) reaction that occurs upon re-exposure to an allergen systemically in an individual who has previously been sensitized to it. It is known to occur with exposure to drugs, foods, plants, and herbal products. SCD can present clinically with flares of previous eczema, dyshidrotic hand dermatitis, erythema multiforme, generalized maculopapular-vesicular eruption, vasculitis, urticaria, and even anaphylaxis. Patients may experience systemic symptoms including nausea, vomiting, diarrhea, headaches, malaise, fever and arthralgia. Patch testing helps to confirm sensitization to the suspected allergen. Skin eruptions usually resolve after avoidance of the culprit allergen and prescribing appropriate treatment.

Conclusion:

Given that our environment is rapidly changing, it is important to be aware about possible novel sources of known allergens. Even though systemic contact dermatitis is rare disease, it should be considered in the differential diagnosis in cases of recalcitrant to treatment eczema.

Abstract N°: 3451**Cyanocobalamin supplement-induced symmetrical drug-related intertriginous and flexural exanthema (SDRIFE), an unusual presentation of systemic contact dermatitis.**

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Case Report:

A 69 years-old female patient was referred for extensive rash of 5 years of evolution. High blood pressure, bariatric surgery, and vulvar cancer were her most relevant medical history. The patient had been receiving vitamin B12 oral supplements for 10 years (as a result of bariatric surgery). Physical examination showed a symmetrical and localized erythematous-squamous rash, mainly located in axillary and submammary flexural areas (Fig.1 a-b), and inguinal region (Fig- 1c). She had been evaluated for several dermatologists, prescribing oral corticosteroids in numerous occasions leading to improvement but recurrence of the dermatosis few days after discontinuation. Skin biopsy was compatible with contact dermatitis, and the patient was finally referred for patch test. Patch tests were performed with the European Comprehensive Baseline Series, and the results were interpreted according to the criteria of the International Contact Dermatitis Research Group. The patient showed a positive patch test reaction to cobalt chloride hexahydrate 1% pet. (++) at days 2 and 4. A systemic allergic contact dermatitis (SDRIFE subtype) was suspected because of the weekly intake of cyanocobalamin. Supplementation was discontinued, and at the three-month follow-up the patient showed a complete resolution of her dermatitis, with no treatment required.

Discussion:

Cyanocobalamin (vitamin B12) is a water-soluble vitamin containing cobalt in its molecular core. Acne, rosacea and different hypersensitivity reactions (injection site reactions, urticaria or anaphylaxis) have been reported in association with cyanocobalamin supplementation. Systemic contact dermatitis (SCD) is an inflammatory skin reaction induced by the exposure to allergens, including metals such as cobalt. Symmetrical drug-related intertriginous and flexural exanthema (SDRIFE) is a subtype of SCD. No cases of SDRIFE due to cobalt have been reported so far.

Patients suffering from allergic contact dermatitis to cobalt are predisposed to develop cutaneous manifestations after its systemic supplementation, such as chronic vesicular hand dermatitis, cheilitis, and stomatitis.

Vitamin B12 oral therapy was the culprit in a patient with pigmented contact dermatitis on his face, neck and upper back, which gradually resolved after discontinuing cyanocobalamin treatment and using topical corticosteroids and retinoic acid. A Japanese female patient developed a SCD consisting of palmoplantar eczema with T-cell lymphomatoid reaction, with a remarkable improvement after discontinuing cobalamin therapy.

Some authors have suggested that vitamin B12 intolerance could be underestimated because of the considerable cobalt allergy's incidence, which has been estimated in approximately a 2.7% of the general population, affecting 6.2–8.8% of patch-tested dermatitis patients within the European Surveillance System of Contact Allergies network. Cobalt also exhibits cross-sensitivity to nickel, so asking about nickel allergies could be of interest before starting vitamin B12 therapy.

Conclusion:

We present the first reported case of a patient with SDRIFE presentation of SCD induced by vitamin B12 supplementation. We propose that in case of a patient presenting SDRIFE who is receiving vitamin B12, it would be advisable to perform patch tests to rule out SCD.

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Abstract N°: 3812**Sodium metabisulfite a low current relevant allergen in Spain**

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Introduction & Objectives:

The prevalence of contact allergy to sodium metabisulfite (SMB) has increased in published series over the last decades. SMB has been included as an allergen for European base line in 2023 and a candidate allergen for the Spanish Standard Series in 2022.

OBJETIVE

The objective of this study was to analyze the frequency of sensitization to SMB, reaction strength and its current relevance in patch tested patients in Spain, as well as to describe the demographic characteristic of sensitized patients in order to consider the inclusion of SMB in the Spanish Standard Series.

Materials & Methods:

We performed an observational, prospective multicenter study of patients patch-tested from January 2019 to December 2022 in centers participating in The Spanish Registry Contact Dermatitis (REIDAC). Criteria of accepting current relevance were: SMB found in products used by the patient, timing and distribution of exposure suggesting.

Results:

6311 patients were patch tested with SMB 1%, 134 (2.08%) had a positive reaction. Only 34 patients out of 134 (25,34%) had results considered currently relevant. The most frequently location were the legs (119 patients, 89%). Products most frequently involved were topical medication, leave on and off cosmetics: soaps and hair dyes.

Conclusion:**DISCUSSION**

The rate on sensitized patient to SMB and current relevance is higher in European results and the North American Contact Dermatitis Group than Spain. In spite of a thorough patient's history, current relevance is has not been found in most of sensitized patients to SMB in our study. There are several reasons that can justify these between countries differences. One is the differences in distribution of antigen, such as different habits and products marketed in Spain. New exposure sources of SMB had been published as rubber gloves, but this is so difficult to verify in clinical practice. Another reason for the differences is the difficulty of describing relevance in such a ubiquitous allergen.

CONCLUSION

In this study the prevalence of SMB in Spain is 2,08 % with only current relevance in 25,4 % of positive reactions. SMB should be considered in the baseline series due to its prevalence, however the low number of current reactions makes us more cautious, having only been included as candidate in the extended standard series.

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Abstract N°: 4455**A case of chronic cheilitis caused by contact dermatitis to tobacco from induction-heated cigarettes**Hana Janatova¹¹Hospital , Dermatovenerology, Ceske Budejovice, Czech Republic

Introduction & Objectives: Case description of a 22-year-old man with a one-year history of chronic cheilitis, presenting with swelling, redness, erosions, and pain. The symptoms were highly bothersome. The patient's medical history includes atopic dermatitis, hay fever, allergies to dust, dust mites, hazelnuts, and dog fur. The patient smokes ten cigarettes a day and consumes alcohol once a week. He works at an advertising agency.

Materials & Methods: During the examination, contact allergy was suspected as part of the differential diagnosis. The patient underwent patch testing to identify possible contact allergies. Standard test panels were used, including cosmetic preservatives and commonly used cosmetics such as toothpaste. Additionally, patch testing was performed using materials from electronic cigarettes.

Results: The patch tests revealed a positive reaction to the tobacco flavoring in the induction-heated cigarette. The patient was advised to quit smoking. After quitting, the oozing manifestations on the lips healed. The case study includes photographs of the oozing cheilitis and the healed condition after smoking cessation.

Conclusion:

The clinical case includes the importance of patch tests and allergen exposure. Tobacco and tobacco smoke are associated with various skin conditions, among which contact dermatitis is of prime importance. The aetiological and clinical aspects vary according to the different tobacco production and processing methods. In our case, the patient stopped smoking and the symptoms of very bothersome cheilitis subsided.



Abstract N°: 4767**Ammoniacal Skin Irritation: A Literature Review of Incontinence- Associated Dermatitis.**

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Introduction & Objectives:

Incontinence-associated dermatitis (IAD) is a specific form of contact dermatitis resulting from prolonged exposure to urine and/or feces. Case report: a 47-year-old male with prostate symptoms complained of a pruritic, whitish, dry lesion with indistinct borders on his glans penis persisting for 23 years. He mentioned marital conflicts due to previous treatment failures and his partner's suspicion of a sexually transmitted infection, despite negative test results. Physical examination revealed the described lesion and a balanopreputial frenulum rupture, exposing the urethra in the navicular fossa, suggesting chronic urinary drip, and continuous urine exposure, similar to incontinence. The reaction to ammonia from urine dripping onto the inner foreskin caused ammoniacal dermatitis. Treatment included the use of vaseline, a combination of topical ketoconazole, neomycin, betamethasone, and doxazosin. The patient returned after three months with improved lesion and resolution of marital conflicts. This case triggered the discussion of the topic, emphasizing the importance of considering the diagnosis, which requires further epidemiological and clinical research.

Materials & Methods:

PubMed and LILACS were used as medical research platforms. A search for 'Incontinence Associated Dermatitis' from 2018 to 2023 yielded 59 studies in English, Portuguese, and Spanish. Review articles, systematic reviews, and meta-analyses involving patients over 18 years old were selected.

Results:

Approximately 20% of patients are referred to dermatologists for evaluation of skin blemishes. IAD typically presents as eczema with varying shades of red or whitish color, poorly defined borders, mild scaling, erosions, fissures, and local edema. The prevalence of contact dermatitis in the anogenital area remains unknown due to the lack of standardized diagnostic criteria. The main risk factor is incontinence, commonly associated with the elderly and the use of diapers. The most common differential diagnoses include lichen simplex chronicus, candidiasis and pressure ulcers. Bacterial and fungal infections may also occur as complications. The GLOBIAD tool is often helpful in guiding clinical diagnosis. A biopsy is not informative and reveals nonspecific findings of an eczematous process. Treatment involves the use of medium-potency topical corticosteroids, increased lubrication, and discontinuation of aggressive hygiene practices. No superiority among drug classes has been demonstrated, indicating similar outcomes regardless of the chosen treatment.

Conclusion:

Due to the variable nature of IAD, particularly in different stages of severity, and the lack of standardized definitions and unknown prevalence, it is crucial to consider risk factors, conduct a thorough physical examination, and provide appropriate guidance to patients for achieving favorable clinical outcomes.

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Abstract N°: 4769**Hand dermatitis: a 6-year experience of a tertiary referral hospital**

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Introduction & Objectives: Hand dermatitis is a prevalent inflammatory skin disease with a significant socioeconomic impact, which is responsible for more than 80% of all occupational dermatitis. It presents a lifetime prevalence of 14.5% in the general population, and a pooled incidence rate of 7.3 cases/1000 person-years. Subtypes of the disease include irritant contact dermatitis (ICD), allergic contact dermatitis (ACD), and endogenous vesicular hand dermatitis. The present study aimed to characterize the population of hand dermatitis followed up at the Department of Dermatology of a tertiary hospital.

Materials & Methods: A retrospective descriptive study was carried out through the analysis of medical records of patients with hand dermatitis assisted the Department of Dermatology of a tertiary hospital between March 1st of 2016 and August 31th of 2022.

Results: Of the 175 patients, 73.3% were women, and the mean age at the onset of the condition was 41.7 years. There was a statistically significant association between occupation categories and the presence of occupational dermatitis ($p < 0.001$). The highest prevalence of occupational disease was observed in professionals with cleaning and tidying functions in non-domestic environments ($n=16$, 94.1%), beauty professionals ($n=12$, 92.3%) and occupations related to domestic care ($n=37$, 86.0%). Concerning comorbidities, 14.7% were active smokers, and 6.9% had atopic dermatitis. Based on patch tests results and clinical manifestations, 49.7% were classified as ICD, 57.1% as ACD and 3.4% as endogenous vesicular hand dermatitis. It was observed a statistically significant higher frequency of patch tests' positivity for methylchloroisothiazolinone and methylisothiazolinone (MCI/MI) and nickel sulfate in women and for potassium bichromate and carba mix in men. According to clinical manifestations, patients were divided into two groups: dyshidrosiform dermatitis and non-dyshidrosiform dermatitis. Patients with dyshidrosiform eczema had positive patch tests for MCI/MI in 37.8% of cases ($n=28$) and for nickel sulfate in 35.1% ($n=26$) of them, in comparison with a positivity of 13.9% ($n=14$) and 18.9% ($n=19$) in patients without dishydrosiform eczema ($p < 0.001$ and $p = 0.015$, respectively). DLQI was assessed in 77 patients, and average score was 7.8 points. Standard treatment was prescribed for majority of the patients (topical emollients, topical corticosteroids and oral antihistamines); 54 used oral prednisone, and 3 used oral methotrexate.

Conclusion: Hand dermatitis is an important condition since its high prevalence and usually chronic course that accounts for a significant portion of occupational diseases and compromises patients' quality of life. Health education seems fundamental both to prevent the disease and to promote its control as early as possible.

Abstract N°: 5206**Dimethylfumarate-induced persistent shoe contact dermatitis in a man: The first reported case from Turkey with an unusual way of sensitization**Esen Ozkaya¹, Omer Mangir*¹¹Istanbul Faculty of Medicine Skin and Venereal Diseases, Türkiye**Introduction & Objectives**

Dimethylfumarate (DMF), a fumaric acid ester, is an effective biocide and inhibitor of mould growth. It is usually contained in little sachets and added mainly to leather footwear boxes or inside furniture manufactured in overseas countries, such as the Far East, to preserve leather during transport and storage in a humid climate. Due to its volatile effect, DMF evaporates and impregnates the products, which then come into contact with the consumer's skin. DMF is a potent contact sensitizer at concentrations as low as 1 ppm and caused epidemics of allergic contact dermatitis (ACD) from footwear and furniture in Europe from 2006 to 2008. To our knowledge, shoe-induced ACD to DMF has not yet been reported in Turkey.

Case Report

A 44-year-old nonatopic Turkish man presented with persistent foot eczema that had developed six months ago. The lesions occurred within a few days after wearing new leather shoes. The shoes were of domestic production; however, the raw material (leather) was imported from China. Potent topical steroids and topical antifungals produced only slight improvement. Dermatologic examination showed diffuse hyperkeratotic eczema with fissures and rhagades on the dorsum of the feet, whereas the plantar and interdigital areas were spared. Patch testing according to the ESCD patch test guideline revealed ++ positive reactions to used and unused (new) shoe material of the same brand (pieces of 3 x 3 cm², soaked in water, tested for 72 hours) and a + positive reaction to DMF 0.01% pet. at day (D) 2, D3, D4. A ++ positive reaction to nickel sulfatate 5% pet. was of old clinical relevance. Other allergens of the European baseline series, a leather, rubber, cosmetic, plastic&glues series, and the patient's own topical medicaments gave negative results. The patient avoided contact with footwear that might have contact with DMF, and the foot eczema resolved with topical corticosteroids within two weeks. He remained free of lesions in a 5-month follow-up. The patient had a history of intense occupational contact with anti-mould sachets in 2020 when he was responsible for cleaning up the electrical control panels of 20 new plastic injection machines imported from China in a plastic toy factory.

Discussion

The diagnosis was ACD from DMF in locally produced leather shoes, where the raw material was imported from overseas. Following the ban of DMF-containing items in the European Union in 2009, the Turkish regulation limited the content of DMF in products to 0.1 mg/kg in 2014. Despite this, footwear or raw material containing higher amounts of DMF might still be imported from the Far East. Interestingly, the history of intense occupational contact with DMF-containing anti-mould sachets suggested a primary occupational sensitization with DMF. Unfortunately, we could not perform a chemical analysis of the shoe material. However, patch testing with used and unused shoes of exactly the same brand, as previously recommended, ruled out contamination with the patient's own material, such as topically applied and absorbed preparations. The female predominance (96.7%) in previous reports on allergic foot dermatitis from DMF was striking. Males were only exceptionally reported (3.3%), as was in the present case.

In conclusion, this was the first reported case of shoe-induced ACD from DMF in Turkey. The male gender, the

unusual way of occupational sensitization to DMF, and patch testing with used and unused shoe material to rule out contamination were other unique features.

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Abstract N°: 5402**An epidemiologic study of patch test positive patients whose allergic symptoms have started after coronavirus pandemic.**

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Introduction & Objectives:

Our study aims to observe patch-test-positive 50 patients who had allergic contact dermatitis after coronavirus pandemic and have performed patch test in our clinic last 2 months, retrospectively. We have evaluated the epidemiologic distribution and whether there is an increased frequency with a specific allergen type after coronavirus pandemic.

Materials & Methods:

European standard patch tests were applied to 152 patients (86 female and 66 male) by taping 30 different allergens under patches to patients' back and have been left on for 48 hours. Patients' skin reactions have been examined after 48, 72, 96 hours and 7 days. Test readings were evaluated as (-) in no reaction; (+/-) in faint erythema; (+) in erythema, infiltration and possibly papules; (++) in erythema, infiltration, papules and vesicles; (+++) in erythema, infiltration, papules, group vesicles and bullas. SPSS program was used and $p < 0.05$ was significant.

Results:

Out of 50 patch-test-positive patients, 74% (37 people) were female and 26% (13 people) were male. The average age of the patients was 34.02 ± 13.94 years and 12% of them were above 18 years. 32% of the patients in the study were stay-at-home spouses, 18% are students, 12% are teachers, 8% are textile workers, 6% are cleaning workers and the rest are other professions. The duration of the disease was 27.2 ± 9.6 months. The most frequently positive allergens in the patch tests were respectively; Propolis (32%), Nickel(II) sulfate hexahydrate (30%), Fragrance mix 1(10%), Colophorum(10%) and Fragrance mix 2(6%).

Conclusion:

In our study, there was a significant correlation between the patch positivity to Methyl dibromo glutaronitrile and the age ($p=0.14$). This can be interpreted as increased contact time with Methyl dibromo glutaronitrile might have a cumulative effect on symptoms' starting time. Furthermore, increased usage of hand sanitizers that include Methyl dibromo glutaronitrile, given the pandemic, also supports this correlation. The other significant data was, 16 of the patients' patch test was Propolis positive. Propolis is a food supplement that patients have been using to improve their immune system due to pandemic. We believe that Propolis patch test positivity greater than Nickel(II) sulfate hexahydrate in our study is related to this widespread use. Moreover, propolis related allergic contact dermatitis is most likely to occur in some professions such as beekeepers, violin makers and shoemakers. In our study, out of 16 patients, 4 were stay-at-home spouses, 3 were students, 3 were teachers and 6 were into other professions.

As we expected, we have seen that patients show increased sensitivity to some allergens due to their excessive use of disinfectants and supplements since the pandemic. We believe that the incidence of these allergens has been

arising each day.

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Abstract N°: 5459

A cross-sectional study to identify the clinical spectrum and determine the role of patch testing in hand and foot eczema in a tertiary care hospital

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Introduction & Objectives:

Hand eczema is often a multifactorial, chronic disease. It is related to routine occupational and household activities. Usage of various topical medications and presence of chemicals in footwear products have resulted in increased incidence of allergic contact dermatitis (ACD) over the lower extremities. Hence it is key to find the etiology and use appropriate preventive and treatment measures.

To identify the clinical spectrum, determine the role of patch testing and identify the most common allergen in hand and foot eczema.

Materials & Methods: Patients with hand and foot eczema attending to the outpatient department of Dermatology, Venereology, and Leprosy in a tertiary care hospital. This is a hospital based cross-sectional study conducted for a period of 18 months.

Results: In our study men were affected more than women. The occupationally active age group was found to be commonly affected in our community. Nickel (20%), PPD (15%) Parthenium (12%), and Potassium dichromate (8%) were the most common sensitizers. Housewives and domestic workers have been shown to have more nickel sulphate sensitivity. Parthenium allergy was significantly more common among farmers, PPD allergy was significantly more common among hair dye users. The most common pattern of hand eczema was non-specific type followed by housewife eczema.

Conclusion: This cross-sectional study was conducted to evaluate the importance of age, occupation, duration, environmental factors and allergic sensitization in the development and recurrence of hand and foot eczema. The occupationally active age group was found to be commonly affected in our community. The importance of patch test in identifying the allergen responsible for the disease causation and exacerbation was evaluated. Patch testing with Indian standard battery of allergens has been very useful investigation in cases of hand and foot eczema revealing allergic contact dermatitis as aetiology in 70% cases. Identifying the allergen is very important in the management of these patients as avoiding the allergen helps the patient to be free of the disease. This also helps by improving the quality of life. Identifying the most common allergen associated with a particular group of people/occupation helps us to advice the patient to use protective measures accordingly and change the occupation if possible.

Abstract N°: 5677**Carbon-fibre-induced airborne allergic contact dermatitis in the drone manufacturing industry**Dessyslava Nikolaeva¹, Nikolay Tsankov¹, Jana Kazandjieva¹¹EuroDerma Clinic, Sofia, Bulgaria**Introduction & Objectives:****Materials & Methods:****Results:**

A 34-year-old female Caucasian patient presented to the clinic with a five-months history of periodically appearing itchy rash on the skin of the cheeks, periorbital area, neck and hands. The patient reported that the lesions exacerbate at work and disappear when on vacation. She is employed in a drone manufacturing company and had daily contact to carbon fibre reinforced resin. On complete dermatological examination an erythematous plaque with pityriasiform scaling on the surface of the left side on the neck was present as well as erythema and desquamation on the upper eyelids. The routine laboratory tests were within normal range. Patch testing with European Baseline Series S-1000 and "as is" testing with carbon fibres and a vinyl ester resin provided by the patient were performed. The results showed strong positive reactions to epoxy resin (++), hydroperoxides of linalool 0.5 (++) and limonene 0.2 (++) , the carbon threads (++) , Methylidibromo Glutaronitrile (++) and Textile dye mix (++) .

Based on the medical history, clinical presentation and conducted examinations, the diagnosis of allergic contact dermatitis due to airborne carbon fibres was established. The patient was advised to change her work environment.

We present a clinical case of occupational airborne contact dermatitis from carbon fibres as part of the increasingly popular nowadays drone manufacturing industry.

Conclusion:

Abstract N°: 5764**Allergic contact dermatitis to benzisothiazolinone in the laundry detergent**Tang Ngee Shim¹¹University Hospital Coventry, Dermatology, Coventry, United Kingdom**Introduction & Objectives:** Allergic contact dermatitis to benzisothiazolinone in the laundry detergent**Materials & Methods:** Clinical case report

Results: We presented a case of allergic contact dermatitis to benzisothiazolinone in the laundry detergent. A 74-year-old non-atopic man was referred to the dermatology with a pruritic eruption affecting the legs, back, chest, inner thigh sparing the genital area for the last 8 years. There was initial suggestion of drug eruption such as rivaroxaban and bisoprolol which were started three weeks before the onset of rash. The rash persist despite changes in his medication. He has also changed his sofa twice which made no difference. He is in a band playing guitar. Clinically, he has ill-defined erythematous scaly patches on the torso and limbs sparing the face, hands and feet. Multiple skin biopsies were taken over the years which has shown spongiotic and non-specific inflammation. He was treated with various strength of topical corticosteroid with limited improvement. He could not tolerate azathioprine and declined further immunosuppressants. He was patch tested to British Standard, cosmetic and fragrance series under occlusion with IQ Ultra chambers (Chemotechnique Diagnostics, Vellinge, Sweden). He was positive to nickel and benzisothiazolinone on Day 4.

He returned two months later with almost clearance of his rash. He has found benzisothiazolinone in his Aldi laundry detergent. He has had switched to a different product and his skin has vastly improved. Allergic contact dermatitis to optical brighteners and enzymes in laundry detergents were the focus of numerous reports in the early seventies. There has been limited published incidence of allergic contact dermatitis in laundry detergents. Allergic contact dermatitis due to methylisothiazolinone in laundry detergent has been previously reported but in our case testing to methylisothiazolinone 0.2% aq and methylchloroisothiazolinone and methylisothiazolinone 0.02% aq were negative. Benzisothiazolinone is a preservative used in cooling fluids, paints, adhesives paper and in the textile industry. From our patient's experience, benzisothiazolinone free laundry detergents are quite challenging to find. We have highlighted a case of allergic contact dermatitis to benzisothiazolinone in laundry liquid whose dermatitis almost clear with the avoidance of such product.**

Conclusion:

Abstract N°: 6069**Developing a multispectral imaging camera to improve the accuracy of remote patch testing**Lisa Kiely^{*1}, Michael Mcauliffe², John F Bourke¹¹South Infirmary Victoria University Hospital, Cork, Ireland, ²Munster Technological University, Cork, Ireland**Introduction & Objectives:**

The COVID-19 pandemic led to the implementation of virtual patch testing in order to maintain access to services. Studies examining this practice, using standard digital cameras to identify positive reactions, were found to be inferior to clinical assessment. Digital cameras have traditionally come in two formats: monochrome and colour. Multispectral cameras target spectral bands in both visible and non-visible spectral regions to perform more sophisticated analysis. Using this technology, it is possible to assess levels of blood flow in a clinical photograph of skin acting as a surrogate marker for cutaneous inflammation. Multispectral imaging has never been used for patch test analysis.

The aim is to assess the spectral response between 400 – 1000 nm of positive reactions of patch test results.

Materials & Methods:

Patients attending for patch testing were recruited and written consent was obtained. Patients returned on day 5 for clinical assessment. Digital photographs were taken and results were determined to be positive, irritant or other. Spectra were recorded using an Ocean optics QE pro spectrometer and a Tungsten Halogen source both coupled with a bifurcated optical fiber. The fiber had a spacer so that a fixed optical distance could be maintained upon contact with the patient. Spectra were recorded in triplicates of positive reactions, irritants and a control negative result. Reference spectra were also collected away from the patch test area as an additional control. The spectra were analysed using Principal Component Analysis, a technique for reducing the dimensionality of datasets, increasing interpretability while minimizing information loss. Spectra were treated using a combination of different mathematical transformations. The results were then examined to determine the optimal wavelengths required for differentiating between positive, irritant and control results.

Results:

Nine consecutive patients were recruited from September to November 2021. Spectra from 40 positive reactions, 2 Dyes and 1 irritant were recorded. Based on the spectra collected and analysed the optimum wavelengths were found between 510 nm and 620 nm. PCA results provide an indication of the severity of the reaction based on the clinical diagnosis. It was also possible to differentiate between dye results and positive results.

Conclusion:

This pilot study outlines the potential application of multispectral imaging for the interpretation of patch test results. The results show there is a spectral difference between positive and negative results which would support the development of a multispectral camera that could support clinical diagnoses of virtual and remote patch testing.