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Dermatitis caused by physical irritants

Morris-Jones R, Robertson SJ, Ross JS, White IR, McFadden JP, Rycroft RJG.

Br J Dermatol 2002;147:270-5.

A retrospective analysis of patients attending St. John's Institute of Dermatology Contact Dermatitis Clinic with a diagnosis of physical irritant contact dermatitis (PICD) over the past 20 years was performed. PICD was diagnosed by a history of exposure to a known irritant and the presence of dermatitic changes, together with negative patch test findings. Out of the 29000 patients seen at the Clinic, 335 patients with PICD were included in the study.

Their mean age was 38.9 years. The male-to-female ratio was 1.26:1. Most cases were work-related (84%), for example, office work (21%), factory work (7.8%), machine operators (5.6%), tailor/seamstress (4.2%), and catering workers (3.8%). Low humidity was the most commonly implicated physical irritant (90%), followed by heat, metals, paper, tools, fibres/fabrics, plastics, dusts and others. Physical irritants caused direct damage to the skin, resulting in a local inflammatory reaction without preceding sensitization. The mechanisms of physical irritation identified included friction (35.3%), dryness (32.7%), heat (11.2%), occlusion (7.2%), pressure (6.4%), chronic trauma (4.4%), and acute trauma (2.8%). Hands (35%) and face (26%) were the commonest sites involved.

The authors believed that prevention and protection were the two most important measures to reduce the incidence and severity of the condition.

Type IV hypersensitivity to betamethasone valerate and clobetasol propionate: results of a multicentre study

Sommer S, Wilkinson SM, English JSC, et al.

Br J Dermatol 2002;147:266-9.

This study was undertaken to decide the best method to assess contact allergy to betamethasone valerate (BV) and clobetasol propionate (CP). Altogether 1562 consecutive patients from seven U.K. centres were patch-tested with tixocortol pivalate, budesonide, BV (1% in petrolatum, 0.12% in petrolatum, 1% in ethanol and 0.001% in ethanol) and CP (1% in petrolatum, 0.25% in petrolatum, 1% in ethanol and 0.001% in ethanol).

One percent of the subjects showed contact allergy to either BV and/or CP. Most of them (81%) would have been overlooked if they were just tested with tixocortol pivalate and budesonide. However the best patch-testing concentration was still not known. A high concentration might block or delay a potential reaction, while a lower concentration might not be enough to elicit a positive reaction. This study found that 1% concentration of BV or CP could identify 64% of positive results. It also confirmed that ethanol was the best patch-testing vehicle for them.

As both BV and CP were commonly prescribed topical steroids, the authors concluded that type IV hypersensitivity to either medications was a significant problem. If this possibility was suspected but initial patch testing was negative, serial dilution of the allergen or intradermal testing might help.

A community-based epidemiological study of acne vulgaris in Hong Kong adolescents

Yeung CK, Teo LHY, Xiang LH, Chan HHL.

Acta Derm Venereol 2002;82:104-7.

A telephone questionnaire survey was conducted to assess the prevalence and severity of acne among people aged 15 to 25 in Hong Kong. The questionnaire was validated in a group of 22 randomly selected dermatology patients and a group of 25 randomly selected nursing students within the same age group. Out of 5522 families successfully contacted from 10,000 telephone numbers randomly selected from the Residential Telephone Directory 1999, 552 subjects aged 15 to 25 completed the questionnaire. Acne was present in 52.2% of subjects at the moment of interview. Scarring and pigmentation were more common (52.6%), compared with a Western study. Less than one quarter of the respondents knew the cause of acne and most (65.0%) were not aware of the availability of highly effective treatment for acne. Psychological disturbance was noted in 26.6%, but only 2.4% had consulted a medical practitioner. Some (41.5%) had used medications obtained from pharmacy and most of these (94.7%) were topical preparations.

Given the prevalence of acne and its complications, the authors suggested that more health education was necessary to raise the public and school students' awareness of the disease. This would allow early medical consultation, treatment, and hence reduction of acne complications.

A prospective epidemiologic survey on the prevalence of foot disease in Hong Kong

Chan MKT, Chong LY.

J Am Podiatr Med Assoc 2002;92(8):450-6.

A prospective survey, as part of the multi-national Achilles Foot-screening Project, was conducted to assess the prevalence of foot disease in Hong Kong during a one-week interval in 1998. The subjects were randomly selected from patients seen by 207 doctors during the interval for diseases other than foot problems. A questionnaire was completed and their feet were examined clinically.

Complete data on 824 patients were available for analysis. The male-to-female ratio was 1:1.23. All were Chinese. Sixty-four percent of the subjects had some form of foot disease. The three most frequent diagnoses were fungal foot infection (31%), tinea pedis (30%), and toenail onychomycosis (21%). Metatarsal corns (11%), foot eczema (9%), pes planus (4%), and psoriasis (4%) were also noted. Most foot diseases were commonest in the adult age group (21-60 years old). Conditions associated with foot disease included vascular disease (7.9%), osteoarticular problems (6.3%), diabetes mellitus (5.3%), obesity (5.1%), atopy (3.8%), sports activity (3.2%). Discomfort on walking and pain were reported in 21% and 17% of the patients respectively. These percentages were much lower than those in the European arm of the Project. The authors thought that foot problems were neglected by the Chinese in Hong Kong.

Azathioprine in severe adult atopic dermatitis: a double-blind, placebo-controlled, crossover trial

Berth-Jones J, Takawale A, Tan E, et al.

Br J Dermatol 2002;147:324-30.

This randomized, double-blind, placebo-controlled, crossover trial was carried out to determine the efficacy and safety of azathioprine in the treatment of severe adult atopic dermatitis. The treatment period was three months for azathioprine and placebo, with no wash-off period in between. Azathioprine was given at a dosage of 2.5 mg/kg/day. Disease activity was monitored objectively with the SASSAD scores, and subjectively using a visual-analogue scale for pruritus, sleep disturbance and work disruption. Adverse events were recorded, while biochemical and haematological tests were regularly performed during the study period.

Thirty-seven patients with a mean age of 38 were recruited at the start. Sixteen patients dropped out for various reasons. Twenty-one subjects were evaluable.

The SASSAD score decreased by 26% during azathioprine treatment while there was a 3% drop with placebo ($p < 0.01$). The subjective scores also fell, and achieved statistical significance in the category for disruption of work. The most frequently reported side effect with azathioprine was gastrointestinal disturbance which was severe enough to lead to withdrawal in four patients. Mild leucopenia was seen in two subjects, and transient liver enzyme derangement was observed in eight during azathioprine treatment.

The authors concluded that azathioprine could be a useful drug in severe atopic dermatitis, although gastrointestinal disturbance might be severe. Regular monitoring of haematological and biochemical parameters was advisable.

This is a small study with a high drop-out rate. The therapeutic effect of azathioprine demonstrated was modest only. A larger study with a longer treatment and follow-up period is needed in order to better characterize the value of azathioprine in management of severe atopic dermatitis.

Rapid response to infliximab in severe pustular psoriasis, von Zumbusch type

Newland MR, Weinstein A, Kerdel F.

Int J Dermatol 2002;41:449-52.

Infliximab is a monoclonal antibody directed against tumour necrosis factor-alpha which is secreted by T cells and is believed to be involved in keratinocyte hyperproliferation. Infliximab is currently approved for treatment of rheumatoid arthritis and Crohn's disease. It has been reported to be useful as monotherapy in the treatment of plaque-type psoriasis.

In this report, a 44-year-old woman with severe acute flare of generalized pustular psoriasis and systemic upset (fever and tachycardia) was treated with infliximab at 5 mg/kg infused over three hours. There was quick improvement in vital signs and laboratory parameters within 24 hours, and complete pustule resolution within 48 hours. She had a history of migraine headache and had an exacerbation after the infusion. The attack settled with simple analgesics.

From previous experiences, its side effects included headache, dyspnoea and urticaria. Patients with allergy to murine protein or uncontrolled infection should not receive infliximab, which could lead to fatal complications.

Even though this is a case report, it suggests that infliximab may have a role in the management of severe

acute generalized pustular psoriasis, which carries significant morbidity and even mortality.

Clinical effect of imiquimod 5% cream in the treatment of actinic keratosis

Persaud AN, Shamelova E, Sherer D, et al.
J Am Acad Dermatol 2002;47:553-6.

This study investigated the effectiveness and side effect profile of 5% imiquimod cream in treating actinic keratosis (AK). AK might spontaneously regress and TH1 cell-mediated immune response was thought to be important in the process. Imiquimod could stimulate a TH1 cell-mediated immune response which might eliminate the AK.

Twenty-two patients with AK were recruited and advised to apply 5% imiquimod cream to lesions on one side of the body and vehicle cream to those on the opposite side. The cream was applied three times per week for eight weeks or till clearance of AK, whichever earlier. The patients were assessed for their response to treatment (as the number of lesions remaining) and any adverse effects. Seventeen patients completed the protocol. There was a significant reduction in the average number of AK per subject for the imiquimod-treated side compared with the vehicle-treated side. Most patients (82%) had adverse effects, like erythema, itching and scabbing, though none was severe.

The authors concluded that 5% imiquimod cream was a potential therapeutic option for AK and further studies to compare it with other established agents were warranted.

Phase 1 and 2 trial of bexarotene gel for skin-directed treatment of patients with cutaneous T-cell lymphoma

Breneman D, Duvic M, Kuzel T, Yocum R, Truglia J, Stevens VJ.
Arch Dermatol 2002;138:325-32.

In this open-label, dose-escalating trial, the use of topical bexarotene gel in patients with early cutaneous T cell lymphoma (CTCL) was studied. Sixty-seven adult patients with early stage CTCL (TNM stages IA-IIA) were recruited. The dosage of bexarotene gel was started from 0.1% daily, then stepped up sequentially if tolerated by the patient to 0.5% daily, 1.0% daily, up to a maximum of 1% four times daily. The treatment was carried on as long as the subjects could tolerate. Its efficacy and side effects were assessed.

Most patients could tolerate well up to 1% bexarotene gel twice daily. Side-effects (rash, pruritus, pain) were localized and were not severe. Treatment-limiting toxic effects happened in 16 patients and were related to the increase in drug concentration. The overall response rate was 63% and clinical complete response rate was 21%. Using the Kaplan-Meier method, the median projected time to onset of response (equal or more than 50% improvement) was 20.1 weeks. Fresh cases with no previous treatment gave better result.

The selective binding of bexarotene to the retinoid X receptors might contribute to its antineoplastic effects. In this study, bexarotene was found to be effective and well tolerated in patients with early CTCL.

A randomized clinical trial of 5% topical minoxidil versus 2% topical minoxidil and placebo in the treatment of androgenetic alopecia in men

Olsen EA, Dunlap FE, Funicella T, et al.
J Am Acad Dermatol 2002;47:377-85.

This multi-centre trial was to evaluate the efficacy and safety of 5% topical minoxidil versus 2% topical minoxidil and placebo in treating androgenetic alopecia in men. The trial was randomized, double-blind, placebo-controlled. It involved objective (scalp target area hair count), investigator and patient evaluation of response. The subjects applied the assigned medication twice daily to the frontoparietal and vertex areas for 48 weeks.

Three hundred ninety-three men were recruited for the study and 351 completed the 48-week trial. The increase in nonvellus hair count, patient self-rating of scalp coverage, and investigator assessment of scalp coverage were significantly better for the 5% topical minoxidil group, compared to the 2% topical minoxidil and placebo group. The hair count response to 5% topical minoxidil also occurred earlier. Moreover, the psychosocial aspects of alopecia were significantly better for the 5% minoxidil group. However, side effects like pruritus, local intolerance, and headache were more common in the 5% minoxidil group. Five patients in the 5% group dropped out because of local intolerance while one in the 2% group did so.

This study showed that 5% topical minoxidil gave faster and better effect in hair growth than 2% minoxidil and placebo, with increased local side effects.

Pityriasis rubra pilaris in children

Allison DS, el-Azhary RA, Calobrisi SD, Dicken CH.

J Am Acad Dermatol 2002;47:386-9.

A retrospective analysis of all cases of pityriasis rubra pilaris (PRP) in children seen at the Mayo Clinic from 1975 to 1997 was performed. Totally 30 patients were identified. The male-to-female ratio was 3:2. The commonest type (57%) of PRP was the type III classic juvenile form in the Griffiths' classification. Thirty-three percent had the type IV circumscribed juvenile PRP. Most type III patients first presented between 16-19 years of age while all type IV patients were first seen before or at the age of 12. Only two patients with type III PRP had a family history. Treatments included topical steroids, tar, ultraviolet B phototherapy, systemic retinoids, methotrexate etc. Isotretinoin used at a dose of 0.75-1.5 mg/kg gave excellent result in five out of six patients after less than six months of treatment. Long term follow-up showed 90-100% clearing in 43% of patients, 30-90% improvement (moderate response) in 23%, and less than 30% improvement (poor response) in 17%. Five patients (17%) had recurrence of the disease after resolution.

The authors suggested that PRP in children was a non-familial disease, with type III classic juvenile form most common. Isotretinoin seemed to give excellent results in the patients given this medication.

Analytical study of pustular eruptions in neonates

Nanda S, Reddy BSN, Ramji S, Pandhi D.

Pediatr Dermatol 2002;19(3):210-5.

One hundred neonates with pustular eruption presenting to the paediatrics and dermatology clinics of a tertiary hospital in India were studied. Diseases found were classified into non-infectious and infectious conditions. Non-infectious conditions (42%) included miliaria pustulosa, erythema toxicum neonatorum, epidermolysis bullosa and contact dermatitis. Infectious conditions (58%) included impetigo, intertrigo, scabies, and viral diseases. Thirty-six percent presented in the first week of life.

Miliaria pustulosa (17 patients) was the commonest non-infectious disease, though was previous reported to be rare. It might be attributable to the study population

having occlusive diapers and crowded living environment. The relatively high incidence of epidermolysis bullosa (4 patients) could be attributable to consanguinity in Muslim population. A detailed history, paying attention to maternal infection during pregnancy, and complete physical examination were important. Giemsa stain was useful for diagnosis of viral infection while Gram stain and KOH preparation were useful for bacterial and fungal infection respectively. A working classification allocating the diseases into non-infectious, infectious, congenital and inflammatory group was useful in approaching the problem. Most noninfectious conditions were self-limiting and need only symptomatic treatment. Infections required appropriate antimicrobial therapy. Congenital diseases might need genetic counseling while inflammatory conditions were treated accordingly.

Successful treatment of acne vulgaris using a new method

Bershad S, Singer GK, Parentc JE, et al.

Arch Dermatol 2002;138:481-9.

Short contact application of 0.1% tazarotene gel for acne vulgaris was studied in this randomized, masked, vehicle controlled trial. Ninety-nine volunteers (age 12 to 39) with mild-to-moderate acne on face were recruited and 81 completed this trial. Tazarotene was used for 12 weeks, with contact duration stepped up gradually from half a minute to three minutes before washed off. Short contact was employed to avoid local side effects which had been noticed within 10 minutes of application. Patients were randomized into three groups: tazarotene twice daily, tazarotene once with vehicle once daily and vehicle twice daily. The responses to tazarotene twice daily and tazarotene once daily were significantly better than that to vehicle only, for both inflammatory and non-inflammatory acne lesions. Local side effects included itching, burning, redness, peeling, and dryness. No significant difference in local side effects among the groups was found after week 4.

There were two types of retinoids nuclear receptors: RARs (retinoic acid receptors) and RXRs (retinoid X receptors). Tazarotene acted on the RAR-beta and RAR-gamma receptors, controlling keratinocyte proliferation and differentiation. In this study, the authors concluded that the RAR-specific retinoid, 0.1% tazarotene gel, used as short contact therapy was an effective and safe treatment for acne vulgaris.