

## Oral Presentations

### Do we adequately screen for steroid induced hyperglycemia?

Afsaneh Alavi; Julia Lowe; Scott Walsh; David Juurlink; Neil Shear

University of Toronto, Toronto, ON

**Introduction:** Diabetes was the sixth leading cause of death listed on Canada death certificates in 2005. Pemphigus vulgaris (PV) or Cicatricial pemphigoid (CP) are rare autoimmune disease with a high mortality. However, despite the availability of various adjuvant therapies, systemic glucocorticoids (steroids) are the mainstay of treatment in patients with PV and CP.

The importance of baseline measurement of blood glucose at the commencement of steroid therapy and ongoing screening for hyperglycemia is underestimated in practice either because of the asymptomatic nature of disease or due to difficulty in screening of steroid-induced hyperglycaemia with a random blood sugar. Yet, there is no official guideline for screening of patients with PV or CP on long term systemic steroids

**Methodology and Results:** In this cross-sectional study, we surveyed 200 patients with PV and CP on systemic steroid therapy utilizing the validated survey questionnaire from the Australian Longitudinal Study of Women's Health (ALSWH). 200 patient surveyed either by mail or in the clinic followed by a phone call in 3-4 weeks to review the questionnaire with them. In addition, the patient data was collected from a chart review.

The patients were divided into two groups on the basis of whether new onset steroid induced hyperglycemia had developed or not. We conducted a logistic regression analysis to determine predictors of new-onset Hyperglycemia in patients with CP or PV, and included the following variables: Age, BMI, Family history of diabetes, Steroid Dose, and Duration of Steroid therapy. None of these were independently associated with new-onset Hyperglycemia

at the  $p = .05$  level, with the exception of steroid treatment. In patients with PV or CP, steroid therapy is associated with a markedly increased risk of hyperglycemia (odds ratio 13.9; 95% confidence interval 1.8 to 107.1).

**Conclusion:** Steroid hyperglycemia is more common in persons receiving glucocorticoids. Clinicians should monitor susceptible patients with post prandial blood sugars at regular intervals and perform an HbA1-c test every 90 days. Recommended treatment is based on individual patient characteristics.

### Skin cancers presenting as chronic wounds

Afsaneh Alavi<sup>1</sup> Firouzeh Niakosari<sup>2</sup> R Gary Sibbald<sup>1</sup>

1. University of Toronto, Toronto, ON; 2. Scarborough General Hospital, Toronto, ON

**Background:** Chronic wounds often present difficult diagnostic and therapeutic challenges. Although the aetiology of some wounds can be diagnosed clinically, other wounds can be associated with several different diagnostic possibilities. The skin biopsy can provide valuable diagnostic histological findings. Unfortunately, a number of misdiagnoses do occur because of atypical presentation of a common disease. When managing chronic wounds, clinicians should review the details of patient history, examine the patient for more clues about the wound's cause. A simple skin biopsy will often uncover an unsuspected skin cancer, infections or systemic disease that, if treated properly can avoid patient suffering and disability and promote healing of a stalled or enlarging wound.

#### Objectives:

1. To highlight the role of wound biopsy the diagnosis of non healing wounds.
2. To review the available techniques for wound biopsy and appropriate location for the biopsy based on the underlying etiologies

**Methods:** We reviewed the documents of patients with chronic wounds who attended a Toronto regional wound clinic (Mississauga) during the period of Jan 2008 to May 2009. In this retrospective case series we included 25 cases with leg ulcer and biopsy proven malignancy. The types of malignancies were diverse with the majority represented by basal cell carcinoma (50%), followed by Squamous cell carcinoma (25%), Sarcomas 16% (including Kaposi's Sarcoma 8%), Miscellaneous (8%) .

**Conclusion:** Wound biopsy is a safe and easy way that facilitates accurate diagnosis and proper management of chronic wounds and associated dermatological disease. Appropriate selection of lesion, biopsy method and timing of the biopsy is an important factor for the accurate diagnosis. Wounds are dynamic and with new signs and symptoms in the wounds, repeat biopsy need to be considered. Early detection of wound etiologies will improve the prognosis and health outcome in patients with chronic wounds.

## Pioglitazone for lichen planopilaris

Akerke T. Baibergenova<sup>1</sup> Scott Walsh<sup>2</sup>

1. University of Toronto, Toronto, ON; 2. Sunnybrook Dermatology, University of Toronto, Toronto, ON

### Learning objectives:

1. To discuss new developments in understanding the pathogenesis of cicatricial alopecias
2. To appreciate a potential role of peroxisome proliferator-activated receptors (PPAR) agonist pioglitazone hydrochloride in management of lichen planopilaris (LPP)
3. To review case series of LPP patients treated with pioglitazone hydrochloride

**Background:** Recent basic science research has shown that skin in lichen planopilaris (LPP) models compared to normal skin has decreased expression of genes required for lipid metabolism and peroxisome biogenesis. This leads to pro-inflammatory lipid (such as arachidonic acid) accumulation followed by inflammatory cells infiltration and eventually results in destruction of the pilosebaceous unit. Based on these findings there was a case report of successful treatment of a patient with LPP with oral peroxisome proliferator-activated receptor (PPAR) agonist pioglitazone hydrochloride 15mg.

**Methods:** We followed a series of eighteen patients with LPP who were treated with oral pioglitazone hydrochloride in a dose ranging from 15 to 30 mg o.d. This series includes both newly diagnosed patients as well as those who were previously treated with and failed various anti-

inflammatory or immunosuppressive agents. Improvement in LPP was defined as decrease/disappearance of both subjective symptoms (burning, itching) and perifollicular erythema in the context of halted spread of old patches and absence of any new patches.

**Results:** The majority of patients in our series were females (75%) and the mean age was 49.6 years. Follow-up times ranged from 2 to 6 months. About one third of patient had at least partial improvement of their LPP on pioglitazone. There were no serious side effects noted.

**Conclusion:** Observations based on our case series indicate that the use of thiazolidinediones might be a new promising venue of LPP treatment. Thus a randomized clinical trial of either oral or topical thiazolidinediones for LPP is warranted.

## Update on cutaneous reactions to chemotherapy, including toxic erythema of chemotherapy

Jean Bologna

Toxic erythema of chemotherapy (TEC) is a term that encompasses a number of entities including: acral erythrodysesthesia, eccrine squamous syringometaplasia, epidermal dysmaturation, intertriginous eruption associated with chemotherapy, chemotherapy-induced hidradenitis, and pseudocellulitis or erysipeloid reaction due to chemotherapy. The *clinical* characteristics of TEC are as follows: (1) erythematous patches or edematous plaques of the hands and feet, intertriginous zones, and less often the elbows, knees and ears that usually appear 2 days to 4 weeks following administration of chemotherapeutic agents; (2) associated symptoms of pain (which can be severe), burning, paresthesias, pruritus and/or tenderness; (3) development of a dusky hue, petechiae (which may reflect thrombocytopenia), and/or sterile bullae (followed by erosions) within areas of intense erythema in some patients; (4) desquamation and spontaneous resolution without specific therapy; and (5) recurrence if the same or higher dose intensity is administered. The *histologic* features of TEC include atypia (enlarged cell and nuclear size, nuclear pleomorphism) and apoptosis of keratinocytes, loss of polarity of epidermal cells and crowding of keratinocytes, vacuolar degeneration of the basal layer of the epidermis, dermal edema and eccrine squamous syringometaplasia.

Additional cutaneous reactions will be discussed including the papulopustular eruption due to inhibitors of the epidermal growth factor receptor (EGFR) and the pigmentary changes due to the tyrosine kinase inhibitor imatinib.

Treatment options for the papulopustular eruption due to EGFR inhibitors will be reviewed.

## Leg ulcer quiz for the astute dermatologist!

Alain Brassard

**Objectives:** Learn about different leg ulcers in an interactive format. Retention of knowledge is far superior when oneself participates to the discussion

**Method:** This is an interactive session based on the American TV Show, Jeopardy. It is delivered to a group of 60 individuals maximum, divided in 6 to 10 teams.

**Results:** The game is divided in five categories: Arterial ulcers, Venous Ulcers, Diabetic Foot Ulcers, Pyoderma Gangrenosum and finally, Unusual Ulcers. Each category has questions and sub questions.

**Conclusion:** On Canada Day, the audience will participate to the discussion of different leg ulcer case-scenarios in a fun and relaxed atmosphere. The winning team will be congratulated by applause...

## Wound dressings made easy

Tracey D. Brown-Maher

### Objectives:

1. To provide an overview of basic principles of wound care.
2. To utilize the basic principles of wound care in choice of appropriate dressings for wounds.
3. To categorize the types of wound dressings so choice of dressing is easy.

**Methods:** Illustrate broad categories of wound dressings and how to choose an appropriate one by case examples using basic principles of wound care.

**Results:** Increased working knowledge of wound care for the medical dermatologist.

**Conclusions:** Wound care is becoming more important as chronic wounds increase in numbers. Dermatologists may act as part of a team of specialists to assist in wound care by becoming more knowledgeable of various types of wound dressings.

## Molecular analysis of multiple lesions within a case of segmental dysplastic nevi

Anna Chaplin<sup>1</sup> S Luo<sup>2</sup> Rob A. Miller<sup>1</sup> Richard Langley<sup>1</sup> Hensin Tsao<sup>2,3</sup>

1. Division of Dermatology, Dalhousie University, Halifax, NS; 2. Wellman Center for Photomedicine, Massachusetts General Hospital, Boston, MA, USA; 3. Division of Dermatology, Harvard University Medical School, Boston, MS, United States

### Learning Objectives:

1. Define Segmental Dysplastic nevi and recognize a patient with SDN.
2. Describe molecular analysis to examine genetic basis of clinical mosaicism in SDN.

**Introduction:** Dysplastic (atypical) melanocytic nevi are potential precursors of melanoma and markers for patients at risk of developing primary melanoma. Segmental dysplastic nevi (SDN) is a rare syndrome where multiple, atypical, pigmented lesions are restricted to one area of the body. Similar to dysplastic nevi, SDN is associated with an increased risk of melanoma. It is thought that this segmental or quadrant manifestation is due to a single autosomal dominant mutation that occurs early in ontogeny with the progenitor cell giving rise to the disease phenotype. Here, an interesting and rare clinical case of SDN is presented. The molecular analysis to examine the genetic basis of clinical mosaicism in SDN is also introduced.

**Methods:** A patient with SDN was identified in the dermatology clinic and consented to participate in the study. Biopsies of skin containing the atypical looking nevi were taken. H&E sections of the nevi samples were confirmed microscopically to contain nevus cells. DNA extraction using the Qiagen or Arcturus Picopure kit was performed depending on the size of tissue. *BRAF* exon 11 and 15, and *NRAS* exons 2 and 3 were PCR amplified. Gel extraction of the desired PCR products was performed when necessary and the products were sent for direct sequencing using the Sanger method. Sequence chromatograms were then evaluated for single nucleotide polymorphisms both manually and using NCBI BLAST. Reverse direction sequencing and repeat PCR will be used to confirm the results.

**Results:** Preliminary findings showed that many of these nevi samples carried a recurrent doublet mutation at nucleotide positions 1799 and 1800 in *BRAF* exon 15. This GTG to GAA nucleotide change leads to a missense mutation that alters valine to glutamate at codon 600. Studies are currently underway to clarify the status of this mutation in the patient's germline DNA. What is known is that this patient lacks a detectable mutation in the exons encoding p16, within the *CDKN2A* gene. All nevi samples

were wildtype at *BRAF* exon 11 hotspots and *NRAS* codon 12 and 61.

**Discussion:** Analyzing the *BRAF* and *NRAS* genes in the segmental nevi of this patient allows us to test two molecular models. In the first model, the patient is an “oncogenic mosaic” in which a single driving oncogenic event occurred in embryogenesis and therefore, all progeny cells carry the same mutation. This mutation would not be found in germline DNA. In the second model, the patient is a “mutator mosaic” in which the progenitor cell suffered a loss of some repair gene. Independent oncogenic events that later occurred in the progeny cells could then escape detection, making the anatomical segment particularly prone to nevi formation. In this case, the molecular profiles of the nevi within the segmental distribution would be varied.

Funded by Dalhousie University Medical Research Foundation Music-in-Medicine summer studentship.

## Molecular acneogenesis

**Bill Danby**

Dartmouth Medical School, Manchester, NH, United States

Several recent papers have provided details that permit a more detailed description than ever before of the molecular links between diet and folliculo-occlusive disorders, including acne vulgaris and hidradenitis suppurativa.

The most recent work, from Melnik, illustrates how hyperglycemia, insulin and insulin-like growth factor-1 (IGF-1) de-repress the androgen receptor, sensitizing it to low levels of dietary androgens and setting the stage for androgen-mediated somatic growth in infancy and both somatic growth and pilosebaceous activity during puberty.

The pubertal rise of IGF-1, stimulated by both natural endogenous growth hormone and by consumption of dairy, provides the first of three stimuli to sensitize androgen receptor-mediated pilosebaceous ductal activity.

The second is the elevated insulin level induced by both high glycemic load diets and the hyperinsulinemic response to whole and skim milk ingestion that further sensitizes the androgen receptor.

The third is the impact of dairy-sourced 5 $\alpha$ -reduced precursors of dihydrotestosterone (DHT) on the sensitized androgen receptors. The milk-induced de-repression of the androgen receptor is the underlying stimulus to infants' growth that takes neonates of all species through infancy and beyond the anabolic steroids of their mothers' milk to a state of development beyond which food from other than mammary glands can sustain the individual throughout life.

The complex interactions of nuclear transcription factor FoxO1, growth hormone, IGF-1, hyperglycemia, hyperinsulinemia, peroxisome proliferator-activated receptor- $\gamma$  (PPAR $\gamma$ ), glucose transporter protein-4 (GLUT-4) and exogenous androgens with the pilosebaceous intracrine system and the pilosebaceous unit will be explained and simplified.

## Occupational contact dermatitis: a practice audit from the UBC contact dermatitis clinic

**Gillian de Gannes**

Department of Dermatology, University of British Columbia, Vancouver, BC

### Learning Objectives:

1. To become familiar with common occupational allergens causing contact dermatitis
2. To illustrate the need for a detailed history when assessing a patient with contact dermatitis, especially in an occupational setting

**Objective:** To complete a practice audit from January 2007 to June 2008 in a contact dermatitis clinic associated with a community dermatology practice in Vancouver, British Columbia.

**Methods:** All charts were reviewed for patients patch tested by one dermatologist (GdeG) over this 18 month period. Data collected included patient age, sex, occupation (if workplace allergen suspected as a cause of the dermatitis), allergens tested and positive patch test reactions.

**Results:** In total, 136 patients were patch tested (female=115, male=21). Negative patch test results were found in only 36 patients. There were 113 non-occupational and 23 occupational cases (female=16, male=7) assessed. Relevant positive allergens were found in 15 of the occupational cases. Of the 8 occupational cases that were negative, 5 were diagnosed with irritant contact dermatitis (occupations with a significant amount of wet work or frequent hand washing), 2 with frictional/hyperkeratotic hand dermatitis and 1 patient had symptomatic dermatoglyphism.

**Conclusion:** Three interesting suspected occupational dermatitis cases will be presented to illustrate when the workplace is not to blame. The patients successfully returned to work with only minor modifications to their environment, both at home and in the workplace.

## Photocontact dermatitis

Vincent DeLeo

Photocontact dermatitis is classified as an Exogenous Chemical Photosensitivity along with photodrug reactions. A chemical gets access to the skin from the topical route and absorbs radiation in the UV or Visible ranges to produce an abnormal response in the skin. The reactions can be either toxic (Photo-Irritant Contact Dermatitis - PICD) or allergic (Photo-Allergic Contact Dermatitis - PACD). In PICD the damage is due to a direct effect of the excited chemical on components of the skin, whereas in PACD the light absorbing chemical is transformed into an allergen of the T-cell mediated type. The true incidences of these reactions are unknown. They are thought to be uncommon but not rare.

The most common chemicals to produce PICD are furocoumarins or psoralens present in plants or synthesized to be used as fragrances in personal care products. Some of the most common plants causing this reaction are limes, celery and rue. The reactions usually consist of erythema and edema with possible bullae formation and resolve with a classic hyper-pigmentation. This reaction is referred to as phyto-photodermatitis. The reactions from fragrances have become much rarer and are referred to as berloque dermatitis because of the hyperpigmented "pendant" shaped macules which commonly occurred in the neck area. Tar products can also produce the same reaction and this is usually seen in the occupational setting.

PICD is diagnosed clinically. There are no confirmative tests since such toxic reactions are universal and not specific to an affected individual. Photo-testing would be non-discriminating.

PACD can be caused by sunscreens, fragrances, anti-bacterials and some medications when applied directly to the skin. The reaction after sun-exposure and the formation of the photo-allergen proceeds like any other t-cell mediated contact dermatitis. It results in a spongiotic process with dermatitis or eczema clinically. Photo-patch testing is needed to confirm the diagnosis.

I will review the photo-patch test experience of the North American Contact Dermatitis Group data of the last few years with over 350 patients. The most common relevant allergens were sunscreens including but not limited to benzophenones, PABA derivatives and Avobenzone. Fragrances and other agents are much rarer causes of this reaction.

The work-up of patients with an eczematous photosensitivity should include photo-patch testing for PACD.

## Myths about contact dermatitis

Vincent DeLeo

There are a number of myths about the etiology of allergic contact dermatitis that may hinder the patient's understanding of the cause of their disease. In some cases it may also impede the correct diagnosis by the clinician. These will be discussed as well as the unusual cases when the myth's may actually prove to be reality.

## Starting a tertiary patch test clinic from scratch: an opportunity for innovation

John F. Elliott

Division of Dermatology, Departments of Medicine & Medical Microbiology and Immunology, University of Alberta, Edmonton, AB

**Introduction:** In October 2008 we established a dedicated patch test clinic at the University of Alberta. This venture afforded an opportunity to try some new approaches to the care of this specialized group of patients, necessitated in part by limitations in available clinic time and manpower. Our experiences and resources generated may be of interest/utility to other dermatologists involved in patch testing.

**Methods/Results:** Approaches adopted and useful outcomes attained include: 1. Purchase of all allergens (25 different series) at the same time from a single supplier made for significant price discount. 2. Creation of our own scoring spreadsheets with all allergens listed in alphabetical order has made cross-comparison between different allergen trays fast and easy, and allergen additions/subtractions straightforward. 3. Collection of an extensive patient history via a mail-in paper questionnaire (mailed directly to the patient together with a pre-addressed, stamped envelope to simplify return) and careful review of this prior to the patient's first clinic visit has allowed all standard trays to be prepared (in IQ Ultra chambers) before the patient arrives at the clinic. 4. Placement of pre-filled standard trays simultaneous with the physician collecting the final history, clinical examination, and inspection of patient's products; plus loading relevant patient products into trays right in the examination room has decreased first visit times. 5. Use of digital photography to capture ingredients lists of all potentially relevant patient products has increased the accuracy/completeness of data collection and facilitated patient education when relevant positives are found. 6. Provision of each patient with a personal letter listing all of their positive allergens before they leave the clinic on the final visit has facilitated patient education and simplified preparation of the final report to the referring physician.

**Conclusion:** The above approaches have allowed us to establish a relatively efficient tertiary patch test clinic.

## Allergic contact dermatitis to PPD and Its associations

Lauren Fratesi; Melanie D. Pratt

Division of Dermatology, Department of Medicine, University of Ottawa, Ottawa, ON

**Background:** p-Phenylenediamine (PPD) is an important allergen. 6.0% of patients tested positive to PPD when patch tested according to the The North American Contact Dermatitis group. Permanent hair dyes, azo-type dyes, and Henna temporary tattoos are the most common potential routes of exposure.

**Objective:** To assess the significance of PPD allergy in an Ottawa outpatient contact dermatitis clinic, assess the epidemiology of PPD allergies and their associated allergies. Charts of patients visiting the Ottawa outpatient contact dermatitis clinic from May 1997 to the present time were reviewed.

**Results:** 134 patients were found to have a contact allergy to PPD. 101 of 134 (75.4%) were female and 33/134 (24.6%) were male. Hairdressers accounted for 18/134 (13.4%) of the positive patch test results. 25/134 (18.7%) had a history of atopy. 121/134 (90.3%) were sensitized to hair dye, 3/134 (2.2%) to Henna tattoos, and 10/134 (7.5%) from other sources. 33/134 (24.6%) also had positive patch testing to textile dyes, 10/134 (7.5%) to benzocaine, 8/134 (6.0%) to Sulfa drugs, 2/134 (1.5%) to black rubber and 2/134 (1.5%) to PABA. The rest of the results will be discussed during the presentation.

**Conclusions:** PPD is an important source of contact allergy. Our results show significant associations with allergic contact dermatitis to PPD.

## Brain-skin axis

Christopher E. Griffiths

The Dermatology Centre, Hope Hospital, The University of Manchester, Manchester, United Kingdom

Psoriasis is associated with very significant impairment of quality of life and psychosocial disability. The impairment of quality of life is equivalent to or greater than that experienced by subjects with arthritis, chronic obstructive pulmonary disease or diabetes. Understanding psychosocial disability is an important component of management of patients with psoriasis particularly as to how it contributes to severity of disease. Patients with psoriasis

practise automatic vigilance; stress resulting from psoriasis is a major constraint on normal daily activities. Furthermore anxiety and pathological worry are important determinants of poor outcome to therapy in psoriasis patients although this can be improved by the introduction of cognitive behavioural therapy techniques.

There is an emerging area of psychoneuroimmunodermatology exploring the mechanisms whereby stressful life events may exacerbate and/or trigger psoriasis. Patients with psoriasis have a loss of correlation between sympathomimetic and HPA axis responses to stress and furthermore acute stress can stimulate significant changes in immune responses such as Langerhans cell migration in normal skin. We have ascertained, using FMRI brain scanning that psoriasis patients process adverse stimuli differently. Thus psoriasis is a paradigm for understanding the interactions between the brain and skin as to not only how chronic skin disease causes stress but how stress may initiate cutaneous inflammation.

## Mortality from psoriasis comorbidities in the NL Founder population

W. P. Gulliver<sup>2,1</sup> K. A. Baker<sup>2</sup> D. MacDonald<sup>3</sup>

1. Faculty of Medicine, Memorial University of Newfoundland, St. John's, NL; 2. NewLab Life Sciences, Inc., St. John's, NL; 3. Newfoundland and Labrador Centre for Health Information, St. John's, NL

**Background:** Psoriasis is common inherited inflammatory disorder with an incidence of 1-2% and comorbidities including arthritis, obesity, diabetes, hypertension and heart disease. The cause of death in a cohort of 3226 psoriasis patients from the NL founder population was undertaken.

**Methods:** Multiple data sources were used to extract multiple data points surrounding each death. Data linkage involved a multi-step approach between the NewLab, Newfoundland and Labrador Centre for Health Information and Statistics Canada data systems in order to determine the underlying cause of death in psoriasis patients. Underlying cause of death was available from 1993-2003.

**Results:** Two-hundred and two patients died between 1991 and 2006 of which, 120 a cause of death was known. The mean age of death was 73.0 years for females and 67.5 for males. In psoriasis patients with age of onset before the age of 25, the mean age of death was 59.3 vs 71.2 for onset after the age of 25 ( $p=0.001$ ). The majority of patients died of either cardiovascular (CV) disease or neoplasms, which is not unexpected. Suicide, injury or poisoning accounted for 4.2% of deaths and nervous system and mental

disorders for 3.4%, while genitourinary disease accounted for another 1.7%. This data suggests that the risk of dying from suicide, injury or poisoning may be as high as 1 in 600, while the risk of death from CV disease is ~1 in 75.

**Conclusions:** Considering that the risk of dying from an adverse drug event related to psoriasis treatment is likely less than 1 in 10,000, and that systemic psoriasis treatment may decrease the risk of CV comorbidities it is important that the physician initiate therapy that will clear the psoriasis, improve the quality of life and potentially decrease the risk of premature death from a psoriasis-related comorbidity.

## Simvastatin treatment for pachyonychia congenita – an open clinical study

Peter R. Hull

University of Saskatchewan, Saskatoon, SK

Pachyonychia congenita (PC) is a rare but debilitating condition. Although the condition derives its name from the nail involvement, the debilitation is caused by painful calluses that form on the soles making walking difficult or for some impossible. Inherited as an autosomal dominant trait, the mutant keratin has a devastating effect on the keratinocyte structure leading to cell fragility. This dominant negative effect can be reversed by inhibiting mutant keratin production, as has been shown by the use of siRNA. In an attempt to modify mutant gene expression, response elements in the promoter of Keratin 6A and Keratin 17 were examined for drugs inhibiting expression. Simvastatin has such an effect.

An open clinical study was conducted in a single family with PC using both topical and systemic simvastatin with the topical simvastatin being compared with a placebo in double blinded limb comparison.

**Results:** While there was little observable change in the clinical appearances of the plantar keratoderma in the subjects, pain was remarkably improved and this was reflected in an improvement in the DLQI scores. No differences were noted in the limb comparison.

**Conclusion:** Simvastatin appears to have some effect on decreasing pain and improving quality of life in patients with PC

## Screening for melanoma and non-melanoma skin cancer with annual cutaneous examination

Shannon D. Humphrey<sup>1</sup> Katie Beleznyay<sup>2</sup> Tim Lee<sup>1,3</sup> Jason Rivers<sup>1</sup>

1. Department of Dermatology and Skin Science, University of British Columbia, Vancouver, BC; 2. Faculty of Medicine, University of British Columbia, Vancouver, BC; 3. Cancer Control Research, BC Cancer Agency, Vancouver, BC

**Justification:** Annual Cutaneous Examination (ACE) is recommended by many dermatologists as a screening method for early detection of melanoma and non-melanoma skin cancers (NMSC) in patients with increased risk for these lesions. There is no conclusive evidence to support this practice.

### Objectives:

1. To determine if patients targeted for ACE develop melanoma or NMSC at a greater rate than those not targeted for ACE.
2. To determine if patients targeted for ACE develop melanoma or NMSC at a greater rate than the general population.

**Methods:** A retrospective chart review was performed for patients seen by the same dermatologist over a 10-year period (1991-2001) with the diagnosis of either benign neoplasm of the skin or melanoma. Clinical data was available until 2006 allowing at least 5 years of follow-up. Charts were reviewed to determine if the recommendation for ACE was made. Clinical data was extracted including subsequent histologically confirmed skin cancer diagnoses.

**Results:** Seven hundred fifty three charts were reviewed in patients with the diagnosis benign neoplasm of the skin, of whom 195 patients were targeted for ACE (25.9%). During the follow-up period among the ACE group 75 skin cancers were detected in 31 patients (15.9%) while 18 skin cancers were detected in 15 patients (2.7%) among the non-ACE group. The rate ratio for developing any skin cancer in the ACE group was 12.8 (CI 9.7-16.3). The rate ratio for developing melanoma in the ACE group was 17.2 (CI 6.3-37.4). One hundred sixteen charts were reviewed in patients with melanoma. A total of 116 skin cancers were detected in 53 patients (47%) in the melanoma group.

**Conclusion:** In this study, more skin cancers were detected in the ACE group than in the non-ACE group. This is the first study to examine the role for ACE in a single dermatology practice and provides some preliminary evidence to support this practice.

## Newer skin signs in clinical dermatology

William James

During this session I will discuss several new entities, with insights gained from a review of the literature and my practice.

### WHIM, WILD, and other HPV Susceptibility Syndromes

WHIM is an autosomal dominant disorder characterized by wart infection, hypogammaglobulinemia, immunodeficiency and myelokathexis. The warts are chronic, numerous, and at times may be venereal in type and lead to cervical or vulvar dysplasia. The hypogammaglobulinemia is marked and associated with recurrent upper respiratory infections. There is a neutropenia which results from defective release of marrow cells into the peripheral blood stream (myelokathexis). This condition results from a mutation in the chemokine receptor 4.

WILD syndrome consists of disseminated non-EDV types and involves both the skin and mucous membranes, the latter of which may show dysplasia histologically. There is associated immunodeficiency which has only been documented to be anergy and lymphopenia. Congenital lymphedema is present.

Acquired lymphopenia and hypogammaglobulinemia with massive HPV infection may be seen in patients with intestinal lymphangiectasia and protein losing enteropathy. Finally in January 2010 a generalized HPV 2 infection was seen in a patient with idiopathic CD 4 lymphopenia. These new entities are adding to epidermodysplasia verruciformis as syndromes to consider in patients with widespread or massive warts.

### Medallion-like Dermal Dendrocyte Hamartoma

This congenital lesion was described as a new entity in 2004. It presents as a circular or oval well-circumscribed atrophic patch. Typically it has an erythematous or yellow-brown hue and a pliable, wrinkled surface. All three original cases and the one presented at this meeting were present in girls. Histologically there is a spindle cell proliferation in the dermis that stains positively with CD34. These dermal dendrocytes are bone marrow derived cells that are believed to function as antigen-presenting cells.

### Massive Localized Lymphedema

Described initially in 1998 this condition affects morbidly obese patients who have had a mean weight of 450 pounds. Women outnumber men by 2:1 and present at an average age of 48. The thigh, lower abdomen, scrotum or upper arm are affected. There is a diffuse, ill-defined mass which is thickened, has a peau d'orange surface, at times

erythema. Frequently vesicles, bullae and a weeping clear to cloudy leakage may be present. Histologically fibrosis, lymphatic vascular ectasia and edema are seen. Excision is the only reported cure, and angiosarcoma may complicate the course.

### Proliferative Verrucous Leukoplakia

This uncommon condition was described in 1985. It occurs most frequently in middle-aged women who present with leukoplakia of multiple sites of the oral mucosa. The lesions usually are present in areas less often affected by conventional mucosal SCC such as the buccal mucosa, gingival and palate. They grow slowly but inevitably progress to SCC. The role of HPV is uncertain. There is no effective prophylaxis and frequent follow-up and aggressive surgical intervention are indicated.

### Necrolytic Acral Erythema

Described in 1997, these tender well-defined velvety or scaly surfaced dusky red plaques are found on the dorsal feet at first, but the legs and hands are often affected. Occasionally blisters and erosions occur. The average age of onset is 40 and all cases of the nearly fifty reported have had associated hepatitis C. The skin findings may regress with treatment targeted to the hepatitis, such as interferon or ribavirin.

## Urticaria and angioedema

Allen Kaplan

Diseases characterized by urticaria and angioedema can be divided into those that are due to cutaneous mast cell degranulation with histamine as major contributor and those that are due to excessive production or accumulation of bradykinin. The common denominator is action at receptors along small venules in the skin to cause vasodilatation and to increase vascular permeability. Histamine is a reverse agonist for the H-1 receptor while bradykinin interacts with the constitutively synthesized B-2 receptors as well as B-1 receptors induced by interleukin1 and TNF alpha. Physical urticarias such as cold urticaria, cholinergic urticaria, and dermatographism have short-lived urticarial lesions without any late phase reaction, and respond to high-dose antihistaminics. Chronic spontaneously occurring urticaria is either "idiopathic" or autoimmune. The latter is caused by IgG antibody to the high affinity IgE receptor, hives last 4-36 hrs., 40% have associated angioedema, and skin biopsy reveals a cellular infiltrate resembling the late phase reaction seen with urticaria due to foods or drugs. There are T lymphocytes (primarily CD4 positive and TH<sub>1</sub> subclass), monocytes, eosinophils, and

basophils in a perivascular distribution. Chronic urticaria responds partially to antihistaminics but may require low-dose steroid, cyclosporine, or Omalizumab (IgG anti IgE monoclonal antibody). Bradykinin mediated angioedemas have no associated urticaria and can be due to overproduction [types I, II, and III hereditary angioedema (HAE), or anti C1 inhibitor associated with acquired C1 inhibitor deficiency] or impaired degradation as typified by angiotensin converting enzyme inhibitors employed in the treatment of hypertension, heart disease, and scleroderma. C1 inhibitor dysfunction (types I and II HAE) leads to depressed C4 in 95% of patients, employed as a screening complex interaction of Factor XII, prekallikrein, and high molecular weight kininogen. There is no response to antihistamines or steroid, while epinephrine is unreliable. Laryngeal edema and bowel-wall edema are severe manifestations. Therapy can include attenuated androgens, C1 inhibitor replacement, ecallantide (a plasma kallikrein inhibitor) and icatibant, a B-2 bradykinin receptor antagonist.

## Granulysin: role in lymphocyte-mediated skin disease

Safiya Karim<sup>1</sup> Andrea K. Bruecks<sup>2</sup> Shuhong Liu<sup>2</sup>  
Jennifer Tran<sup>1</sup> P. Régine Mydlarski<sup>1</sup>

1. Department of Medicine, University of Calgary, Calgary, AB;  
2. Calgary Laboratory Services, Calgary, AB

**Learning objective:** To understand the role of granulysin in lymphocyte-mediated skin disease.

**Background:** Granulysin, a protein located in the acidic granules of human natural killer (NK) cells and cytotoxic T cells, has antimicrobial activity against a broad spectrum of intra- and extracellular pathogens. It has recently been implicated in cell-mediated cytotoxicity against microbes and tumours, chemoattraction, immune activation and transplant rejection. Granulysin is expressed in the lesional T cells and dermal dendrocytes of patients with psoriasis, lichen planus, folliculitis and acne. Most recently, granulysin was described as a key mediator for keratinocyte death in Stevens-Johnson syndrome and toxic epidermal necrolysis. Herein, we propose to study the role of granulysin in various lymphocyte-mediated skin diseases.

**Objective:** To examine the expression patterns of granulysin in lymphocyte-mediated skin disease.

**Materials and Methods:** To study the role of granulysin in inflammatory skin disease, formalin-fixed, paraffin-embedded skin sections were treated with an antigen retrieval method. Immunohistochemical studies were performed on skin sections using the anti-granulysin RC8 monoclonal

antibody (MBL International, Woburn, MA). The skin sections were counterstained with hematoxylin and granulysin expression was measured using semi-quantitative techniques. The percentage of granulysin-positive lymphocytes was calculated and the staining intensity was graded on a four point scale: (-) negative, (+) weak, (++) moderate and (+++) strong. All experiments were repeated in triplicate.

**Results:** Granulysin expression was measured in 10 distinct T cell-mediated inflammatory skin diseases. Interface processes, such as pityriasis lichenoides et varioliformis acuta, lichen planus and lupus erythematosus, were associated with an increased number of granulysin-expressing lymphocytes. Further, granulysin expression directly correlated with the extent of keratinocyte apoptosis. Spongiotic, psoriasiform and vesiculobullous reaction patterns (such as psoriasis, spongiotic dermatitis, bullous pemphigoid) demonstrated minimal granulysin staining.

**Conclusions:** Preliminary data suggest that granulysin expression occurs in inflammatory skin diseases mediated by cytotoxic T cells and/or NK cells. Most abundant in interface processes, granulysin expression positively correlates with extent of keratinocyte apoptosis. Further studies are required to study the effect of granulysin on keratinocyte cell death and its role in inflammatory skin disease.

## The prevalence of co-morbidities in psoriatic arthritis (PSA): the experience from an early and an established PSA cohorts from Newfoundland

Majed Khraishi<sup>1,2</sup> Ian Landells<sup>1</sup> Don MacDonald<sup>3</sup>  
Kassem AbouShehde<sup>2</sup> Jonathan Mong<sup>2</sup>

1. Nexus Clinical Research, St. John's, NL; 2. Memorial University of Newfoundland, St. John's, NL; 3. Newfoundland and Labrador Centre for Health Information, St. John's, NL

PsA is a serious chronic condition that affects 10-35% of patients with psoriasis (PSO) and is associated with progressive joint damage and significant morbidity. Co-morbidities associated with PsA are still not fully defined specifically in early stages of the disease compared to the general population.

**Method:** Data was collected from a rheumatology clinic specializing in patients with PSO and PsA diagnosed greater than 2 years (Established PsA) compared to cohort of PsA patients diagnosed less than 2 years (Early PsA) in Newfoundland. Data for controls with no history of PSO or PsA were collected from the Newfoundland and Labrador Center for Health Information (NLCHI). Controls were matched 3:1 to the established cohort. Co-morbidities associated

with PsA will be compared to the general population using age adjusted standardization rates by gender.

**Results:** 148 patients with PsA were identified, of which 38 were in the Early PsA group and 60,521 controls were identified from the NLCHI. Mean (SD) age of the established group was 53 (11.0) and 48 (11.3) for the Early group. There were more females in the Early PsA group compared to the Established (60.5% vs. 42.6%) respectively. The table summarizes the prevalence rates of co-morbidities demonstrating that hypertension, obesity, diabetes and depression are more prevalent in the PsA population in comparison to the general population.

These co-morbidities existed even in those patients with early disease ( 12.1 months). For example, hypertension risk rate in the females in the early group was 16.9 times more than the general population (gender and age matched) controls. and obesity was 18.2 times more prevalent than controls

**Conclusion:** Patients with PsA have a high prevalence of cardiovascular disease and metabolic abnormalities. Patients in the Early PsA cohort had a slightly higher rate compared to the Established cohort.

## Undergraduate dermatology education across Canada

Carly Kirshen<sup>1</sup> Ilya Shoimer<sup>2</sup> Judy Wismer<sup>2</sup>  
Jean-Pierre DesGroseilliers<sup>1</sup> Harvey Lui<sup>3</sup>

1. University of Ottawa, Ottawa, ON; 2. McMaster University, Hamilton, ON; 3. University of British Columbia, Vancouver, BC

**Introduction:** The Canadian dermatology undergraduate curriculum was reviewed in 1983, 1987 and 1996. All surveys revealed the sparse amount of time dedicated to dermatology in the undergraduate curriculum. Moreover, from 1983 to 1996, there was a decrease in the number of dermatology lecture hours from 18 to 10 hours. This survey was designed to obtain current information regarding undergraduate dermatology teaching in Canadian medical schools.

**Methods:** A survey was sent electronically to all 17 of Canadian medical schools' Undergraduate Dermatology Curriculum Coordinators. There was a 100% response rate.

**Results:** Between 1996 and 2008, the average number of hours of dermatology teaching has increased slightly. The average number of dermatology lecture hours is now 13.8. There are more hours dedicated to didactic lectures, although the method of teaching delivery varies greatly between schools. Again, most of the teaching is performed

in the pre-clinical years. The majority of schools would like to have more time dedicated to dermatology teaching; however, many schools cited that a restriction in the number of faculty members was a barrier to education delivery. There have been recent studies documenting the dwindling numbers of Canadian dermatologists.

**Conclusion:** It is extremely important to have dermatology included throughout the undergraduate medical curriculum since most dermatological patient problems are seen by non-dermatologists. Additionally, the number of residency spots allocated to dermatology among English programs has increased from 6 to 17 from 2004 to 2010 and providing an introduction to dermatology can attract students to the specialty both clinically and in research. Each of the schools believed that there may be value in moving towards a national strategy for dermatology curriculum changes and this can ensure both uniformity and consistency within Canada.

## Development of photosensitivity after allergic contact dermatitis to epoxy resin

Tiffany Kwok<sup>1,2</sup> J G. DeKoven<sup>2,3</sup> Cheryl Rosen<sup>3,4</sup>

1. Schulich School of Medicine, University of Western Ontario, London, ON; 2. James R Nethercott Occupational Disease Specialty Program, St. Michael's Hospital, Toronto, ON; 3. University of Toronto, Toronto, ON; 4. Division of Dermatology, Toronto Western Hospital, Toronto, ON

**Introduction:** Persistent photosensitivity with a decrease in the Minimal Erythema Dose to UVB and UVA following ACD has rarely been reported.

**Learning objective:** To create awareness that ACD to epoxy may be a trigger for persistent photosensitivity.

**Methods:** We describe a healthy 40-year-old female train car painter with longstanding ACD to epoxy. She avoided recurrence of her ACD for 8 years by becoming a welder and refraining from working with epoxy paints. Unfortunately, after inadvertent workplace airborne exposure to epoxy, a severe dermatitis developed on her face and torso. Following a flash burn while welding, a rash developed on photo exposed areas of the patient's head and neck. The eruption worsened when she was outdoors on days when the sun reflected off the snow. Significant exacerbations were later noted in the spring and summer.

**Results:** Repeat patch testing to the North American Standard Series revealed a 2+ reaction to epoxy resin. Subsequent photo testing revealed a decreased MED to UVA and UVB, with 1+ reaction to 10 mJ/cm<sup>2</sup> UVB at 8 hours and 2+ reaction at 24 hours, and a 1+ reaction to 4 J/cm<sup>2</sup> UVA at 8 hours and a 2+ reaction at 24 hours persisting to 72 hours.

Photopatch tests to the North American Standard Series were negative.

**Conclusion:** There is an uncommon yet definite association between development of persistent photosensitivity following allergic contact dermatitis to epoxy resin. Other cases of persistent photosensitivity after ACD to epoxy and possible mechanisms will be discussed in this presentation.

## Long-term safety and efficacy of ABT-874 for the treatment of moderate to severe psoriasis -interim analysis from an open-label extension study

Richard Langley<sup>1</sup> Kim Papp<sup>2</sup> Alice Gottlieb<sup>3</sup>  
Gerald Krueger<sup>4</sup> Bruce Strober<sup>5</sup> David Williams<sup>6</sup>  
Michele Olds<sup>6</sup> Joaquin Valdes<sup>6</sup> Kenneth Gordon<sup>7</sup>

1. Dalhousie University, Halifax, NS; 2. Probitry Medical Research, Waterloo, ON; 3. Tufts Medical Center, Boston, MA, USA; 4. University of Utah Health Sciences Center, Salt Lake City, UT, USA; 5. New York University School of Medicine, New York, NY, USA; 6. Abbott Laboratories, Abbott Park, USA; 7. NorthShore UniversityHealth System and University of Chicago, Pritzker School of Medicine, Evanston, IL, USA

**Objective:** To determine interim safety and efficacy results from an ongoing, open-label extension study (OLE) of the anti-IL-12/23 agent, ABT-874.

**Methods:** Patients from ABT-874 phase 2/3 psoriasis trials were eligible for this OLE study upon loss of response or completion of study. Treatment consists of 100 mg ABT-874 every 4 weeks; those with  $\geq 1$  dose during OLE comprise the safety set. Adverse events (AEs) from the first dose of ABT-874, in any study, and up to 45 days following the last dose of study drug are recorded. This interim analysis provides data through November 26, 2009.

**Results:** High levels of PASI response, as achieved in run-in studies, were generally maintained. The safety set consisted of 2,298 patients (2904.0 PY exposure). 2.7% have withdrawn due to AEs. AEs occurring in  $\geq 5\%$  of patients were: URI (13.6%), nasopharyngitis (13.4%), headache (6.7%), arthralgia (5.8%), and hypertension (5.2%). Infectious AEs occurred in 45.5%; serious infections in 1.0%; and opportunistic infections in 0.3% (candidiasis, n=5 [including 1 oral, 1 esophageal]; and coccidiomycosis, n=1). 1.6% of patients had malignancies; 1.2% had NMSCs (BCC, n=15; SCC, n=16); 1 melanoma in-situ occurred. 11 major adverse cardiovascular events (MACE) were observed during OLE, in addition to 7 from one run-in study (total events, n=18 [incidence=0.60 events/100 PY]; myocardial infarction, n=11; stroke, n=3; and cardiovascular death, n=4; all had CAD risks). Using a composite of 4 CV risk factors a

retrospective analysis revealed that MACE occurred at a rate of  $<0.3$  events/100 PY in patients with 1 or less risk factors compared to  $>2.0$  events/100 PY in patients with 2 or more risk factors.

**Conclusions:** This interim analysis supports the need to closely monitor AEs of infection, NMSC, and cardiovascular risk factors that may contribute to MACE events in patients receiving ABT-874 for the treatment of moderate to severe psoriasis.

## Prognostic significance of BRMS1 expression in human melanoma

Jun Li; Yabin Cheng; Gang Li

Department of Dermatology and Skin Science, Jack Bell Research Centre, Vancouver Coastal Health Research Institute, University of British Columbia, Vancouver, BC

BRMS1 (Breast Cancer Metastasis Suppressor) has been reported to suppress metastasis without significantly affecting tumorigenicity in breast cancer and ovarian cancer. To investigate the role of BRMS1 in human melanoma progression and prognosis, we used tissue microarray (TMA) to examine BRMS1 expression by immunohistochemistry in melanocytic lesions at different stages. Our data showed that BRMS1 expression is significantly decreased in metastatic melanoma compared with primary melanoma or dysplastic nevi ( $P = 0.021$  and  $0.001$ , respectively,  $\chi^2$  test). There is no significant difference for the expression of BRMS1 between dysplastic nevi and primary melanoma ( $P = 0.057$ ,  $\chi^2$  test). Reduced BRMS1 staining is significantly correlated with AJCC stages ( $P = 0.011$ ,  $\chi^2$  test), but not associated with tumor thickness, tumor ulceration and other clinicopathological parameters. Furthermore, BRMS1 expression is significantly correlated with disease-specific 5-year survival of melanoma patients ( $P = 0.007$ , log-rank test). Multivariate Cox regression analysis also revealed that BRMS1 staining is an independent prognostic factor for melanoma patients (relative risk = 0.51; confidence interval = 0.29 to 0.91;  $P = 0.022$ ). Moreover, our in vitro studies showed that BRMS1 inhibited the growth and tube formation of endothelial cells by suppressing IL-6 expression. In addition, our in vivo studies confirmed that BRMS1 inhibited blood vessel formation by matrigel plug assay. Taken together, BRMS1 expression is decreased in metastatic melanomas and it inhibits angiogenesis in melanoma. BRMS1 may be used as an important prognostic marker and potential therapeutic target for melanoma.

## Cutaneous leishmaniasis: a review of current therapies and update

Simin S. Meymandi<sup>2</sup> Afsaneh Alavi<sup>1</sup>

1. University of Toronto, Toronto, ON; 2. University of Kerman, Kerman, Iran

**Background:** Cutaneous Leishmaniasis is a vector born disease with a variety of clinical manifestations that can cause disfigurement and mucosal involvement. Over 90% of cutaneous Leishmaniasis cases caused by *L. Major* and *L. Tropica* in Middle Eastern countries including Iran, Iraq, Afghanistan, Saudi Arabia and Syria. As a result of the exposure of Canadian military personnel returning from endemic areas, the prevalence of the disease is increasing in Canadian dermatology practices.

**Objectives:** The aim of this review is:

- To provide an update on the current therapies for cutaneous Leishmaniasis
- To highlight the variety of morphological manifestations of cutaneous Leishmaniasis
- To present the expert opinions on the treatment of cutaneous Leishmaniasis in an endemic area through e-mail survey.

**Methods:** A Medline review was performed for the last 5 years and supplemented by search of reference list and textbooks. Expert dermatologists practicing in endemic area in Iran were surveyed on the treatment of choice for cutaneous Leishmaniasis through an e-mail survey.

**Results:** Although cutaneous leishmaniasis (CL) is a self-healing disease, it has a long duration and sometimes may become severely destructive. There is no effective vaccination for this disease. There are different types of treatments for cutaneous Leishmaniasis as systemic and localized. The first line drugs for treatment of cutaneous based on the literature are still pentavalent antimonials. Treatment regimes often include combination of different modalities. Expert physicians in endemic area recommend combination of intralesional injection of pentavalent antimonials with cryotherapy versus systemic pentavalent antimonial as the treatment of choice for Cutaneous Leishmaniasis caused by *L. Major* and *L. Tropica*.

**Conclusion:** Cutaneous Leishmaniasis is a relatively rare condition in North America with no treatment yet specifically indicated. The evidence behind modalities for the treatment of cutaneous Leishmaniasis is limited. Considering the self healing nature of acute Cutaneous Leishmaniasis, the risk benefit ratio for the treatment needs to be considered and the treatment plan need to be individualized.

## Contact allergens have an intrinsic capacity to activate innate immune cells: elucidating the signaling pathways

Andrei Musaji; Carlos Garcia-Batres; Kunimasa Suzuki; John F. Elliott

Division of Dermatology, Departments of Medicine & Medical Microbiology and Immunology, University of Alberta, Edmonton, AB

**Learning objective:** To understand why, of all the small reactive molecules that come into contact with our skin, only a tiny subset have the potential to become contact allergens.

**Introduction:** Common contact allergens such as nickel and hair dye (PPD) are capable of inducing T-cell mediated, delayed-type allergic skin reactions. We hypothesize that this occurs in part because the contact allergens (or molecules derived directly from them) have a particular capacity to non-specifically activate antigen presenting cells (APCs). However, the molecular details of this activation process have not been elucidated. The human monocytic leukemia cell line THP-1 provides an in vitro system to model the activation of APCs.

**Methods:** THP-1 cells were treated with various doses of nickel, PPD, or trimerized PPD (called Bandrowski's base or BB) and production of TNF $\alpha$  was measured by ELISA using MesoScale Electrochemiluminescence technology. The same experiments were repeated using a second THP1-XBlue cell line that has been stably transfected with an NF- $\kappa$ B/AP-1 inducible SEAP reporter. With this system, any stimuli (such as TLR triggering) which signal through NF- $\kappa$ B will cause the THP1-XBlue cells to secrete SEAP into the media, producing a blue color. The cell lines were irradiated with very low energy UV-X border (GRENZ) rays which are known to suppress contact allergy to nickel, and the dose response-curves repeated. Imiquimod (signals through TLR-7) and endotoxin (signals through TLR-4) were used as controls.

**Results:** Both nickel and BB induced TNF $\alpha$  production by THP-1 cells, with fairly sharp peaks in the dose response curves. Concentrations of allergens  $\geq$  those giving peak TNF $\alpha$  production appeared to cause significant cytotoxicity. Similar dose-response curves were obtained with THP1-XBlue cells.

**Conclusions:** Two common and potent contact allergens (nickel and hair dye) both appear capable of activating antigen presenting cells, nickel by acting directly, and hair dye by acting through an abundant derived product BB. The THP1-XBlue cell reporter system will allow us to proceed with siRNA screening to identify TLR or other

innate immune receptors through which Bandrowski's base (trimer of PPD) is signaling.

## **The hatchet or the biological scalpel: current cancer conundrums**

**Suzanne Olbricht**

How many cancer cells need to be killed in order to cure patients? The premise of most surgical cures is that we are removing or destroying all the bad cells because we are worried that more or less all the cells that look atypical to the pathologist have a similar potential to proliferate and propagate disease. Or at least we can't tell the difference. Therefore, we take out our hatchets. For cohesive, locally invasive, slowly growing tumors with contiguous growth patterns, the hatchet approach has excellent cure rates. Some cancers are however not detected early or spread quickly or escape the confines of the bulk of the tumor and are difficult to cure with this approach. Most modern chemotherapy drugs kill rapidly dividing cells and many of the drugs can be somewhat targeted for the cell type of the cancer. But not all the cells are rapidly dividing, and only some cancers and some patients are cured. The current exciting research endeavors are pushing for the ability to modulate biology and/or target specific genetic abnormalities in order to have very sharp, scalpel-like, indeed laser-like, targeted effect on the cells that have the potential to maintain and propagate the disease.

How close are we to that goal? For dermatologists, there are three malignant processes we can discuss: lentigo maligna, dermatofibrosarcoma protuberans, and basal cell carcinoma. For lentigo maligna, a recent study validates the success of staged excision, however there is some data that modulating immune function by using topical imiquimod to stimulate interferon may be successful. We will look at the reports available and decide the strength of the evidence. B-RAF mutations and possible future targeted therapies for malignant melanocytes is a sidebar discussion but one that is very exciting. Using the hatchet for treatment of dermatofibrosarcoma protuberans is standard procedure and the technique, histologic considerations and efficacy will be reviewed. In addition, we also now know the genetic defect of dermatofibrosarcoma protuberans; can our biological scalpel be imatinib mesylate? How does it work and how likely is it to be effective? We also know the genetic defect for patients with basal cell nevus syndrome and there is a prototype drug that has treated a few patients with an overwhelming burden of disease. Could that have implications for the current algorithm of treatment of sporadic basal cell carcinoma?

Is it a brave new world? Are we there yet? Which will you grab: the hatchet or the biological scalpel?

## **Intra-oral contact dermatitis: case presentation and literature review**

**Laurie M. Parsons**

University of Calgary, Calgary, AB

Intra-oral contact dermatitis is an uncommon finding in a general contact dermatology clinic. Although most clinicians would expect that dental materials were the most common culprit, a review of the literature and cases from the Southern Alberta Contact Dermatitis clinic will reveal cinnamic aldehyde as the most common allergen elicited. We will discuss the clinical scenario under which allergic contact dermatitis in the mouth may occur and why it is logical for cinnamic aldehyde to be the most common culprit.

## **Compression wraps unraveled**

**Laurie M. Parsons**

University of Calgary, Calgary, AB

There is an art and a science to decompression wraps for the lower leg. Material choices for wrapping and the manner in which a wrap is done can affect the level of compression at the ankle and patient comfort. There are also those patients which have mixed arterial insufficiency who still have chronic venous insufficiency. Choice of materials and methods for various clinical situations will be discussed melding art and science into best practice.

## **Where dermoscopy ends, confocal microscopy starts**

**Giovanni Pellacani**

Department of Dermatology, University of Modena and Reggio Emilia, Reggio nell'Emilia, Italy

Skin tumors represent the more frequent malignancies in human kind. Only approximately 75%-80% of skin tumors are diagnosed correctly with clinical examination even by expert dermatologists. Therefore, the final diagnosis is often assisted by a surgical biopsy. Thus, in vivo non-invasive diagnostic techniques, such as dermoscopy, have been developed. Dermoscopy provides additional information that are not evident at the only clinical inspection and enables preservation of the tissue, real-time diagnostics and the possibility to follow skin lesions over multiple points in time. Dermoscopy improved diagnostic accuracy

in experienced hands leading to a reduction in the benign-malignant ratio of excised lesions, with respect to naked eye examination. Besides the routine use of dermoscopy, in real-life clinical settings numerous benign lesions are unnecessary excised to avoid missing a skin malignancy, owing to the not-rare presence of skin tumors lacking specific dermoscopic features. Therefore, the need to improve diagnostic accuracy in order to reduce unnecessary surgical excision of benign lesions and, at the same time, increase the sensitivity for lesions resulting false negatives under clinical-dermoscopic examination.

Reflectance Confocal Microscopy (RCM) is an emerging non invasive diagnostic tool that provides in vivo tissue images of epidermis and superficial dermis at nearly cellular histological resolution up to 200  $\mu\text{m}$  in depth.

Concerning melanoma diagnosis, different features have been identified and their usefulness in melanoma diagnosis has been tested on large case series. Melanomas are mostly characterized by epidermal disarray and pagetoid cells in the epidermis, disarrangement of the dermal-epidermal junction, resulting in irregular and non-edged papillae, and cellular atypia at the junction, and atypical nests and bright nucleated cells in the upper dermis. On the other hand, regular dermal-epidermal architecture, and absence of pagetoid infiltration and atypical cells were suggestive of benign lesions. Moreover, RCM displayed relevant benefits in the identification and management of epithelial skin tumors. From one hand, in vivo correct diagnosis enabled the correct treatment of such lesions in many cases, and on the other hand this technique showed the possibility to follow up the efficacy of non/minimal invasive treatments.

In conclusion, In vivo RCM is the only reliable alternative that is available so far because it is the only non invasive diagnostic technique that allows to investigate normal or patho-physiologic processes with a similar microscopic resolution of cellular and sub-cellular detail. Thus, RCM represents an important visual technology that may assist the clinician at patients' bedside to discern between malignant skin tumors and benign ones with an excellent sensitivity.

### **A rare case of contact urticaria: Newfoundland contact dermatitis**

**Syed Pirzada**

Contact Urticaria to fragrance is not only a rare skin disorder but it is also difficult to diagnose and manage. A case of a young girl from a small Newfoundland town will be presented who is struggling to manage her life, dealing with this unusual dermatological dilemma in a not so friendly environment

## **Advances in skin cancer – 2010**

**Darrell S. Rigel**

New York University Medical Center, New York, NY, United States

Skin Cancer incidence and mortality rates are increasing in North America. In the US, over 100,000 newly diagnosed cases of melanoma will be diagnosed this year. Recent studies have shown that there may be 3,000,000 cases of non-melanoma skin cancer diagnosed in the US in 2010. Promising new approaches in basal cell and squamous cell carcinoma and melanoma in terms of diagnosis and therapy have been described and will make a future impact on our management of skin cancer.

Recent advances in non-melanoma skin cancer have primarily in the area of therapeutic advances. New topical agents have been developed that are effective in treating actinic keratoses and basal and squamous cell carcinoma. Recent studies have shown that combining surgical or destructive therapies with topical agents may be more effective than either of these types of modalities alone.

Studies evaluating efficacy of actinic keratoses may be confusing due to differing endpoint used. Trials use different efficacy end points, have different study designs, involve different anatomic sites, and enroll different patient populations. It is important for the clinician when evaluating AK therapies to ensure that endpoints that have been used are similar in all aspects so that meaningful evaluations can occur.

More accurate and effective early diagnosis leading to earlier treatment is critical to successful management of melanoma. Prior to the 1980s, there had been little change in identifying melanoma as the diagnosis was made by identifying gross clinical symptoms. Melanomas were often recognized only when they were large, ulcerated and fungating and, by that point prognosis was poor.

In 1985, recognizing the critical need to educate physicians and the lay public to recognize melanoma in its early clinical presentation, members of our group at New York University devised the ABCD acronym (**A**symmetry, **B**order irregularity, **C**olor variegation, **D**iameter >6mm). The need to recognize lesion change in our acronym was met by our enhancing the ABCDs through the addition of "E" for "Evolving".

National screening programs in Canada and in the US have been successful in enhancing early detection. The first Monday in May has been recognized as Melanoma Monday in the US with associated public education events undertaken each year. The American Academy of Dermatology program has screened over 2 million people since 1985 and

thousands of clinically presumptive melanomas have been detected.

Newly developed technologies promise to enhance diagnostic accuracy for melanoma. Computerized multispectral digital dermoscopy has been used to augment the efficacy of standard dermoscopy. The high resolution of confocal laser microscopy allows for imaging of nuclear, cellular and tissue architecture of epidermis and the underlying structures without a biopsy. As current diagnostic approaches are refined and new therapies enhanced, we will hopefully reach our goal to lower mortality from skin cancer.

## Polyomavirus in non-melanoma skin cancer

Jennifer C. Rodrigues<sup>1</sup> J M. Tran<sup>1</sup> L A. Tibbles<sup>2</sup>  
A K. Bruecks<sup>3</sup> H A. Kurwa<sup>1</sup> P R. Mydlarski<sup>1</sup>

1. Division of Dermatology, Department of Medicine, University of Calgary, Calgary, AB; 2. Division of Nephrology, Department of Medicine, University of Calgary, Calgary, AB; 3. Department of Pathology and Laboratory Medicine, University of Calgary, Calgary, AB

**Learning Objectives:** To understand the role of polyomavirus in the development of non-melanoma skin cancer

**Introduction:** Skin cancer is the most common type of cancer worldwide and affects nearly 100,000 Canadians per year. There are two major types of non-melanoma skin cancer (NMSC): basal cell carcinomas (BCCs) and squamous cell carcinomas (SCCs). While BCCs are typically slow growing and rarely metastasize, SCCs are associated with higher mortality rates. In solid organ transplant recipients, the risk for developing a SCC is 64-250 times that of the general population.

Predisposing factors for the development of NMSC include ultraviolet and ionizing radiation, chronic inflammation, chemical carcinogens and immunosuppression. Oncogenic viral strains have also been identified in certain types of NMSC, including SCC, Kaposi sarcoma and Merkel cell carcinoma.

Polyomaviruses are small, non-enveloped, double-stranded DNA viruses which are widespread in nature. Epidemiologic studies show that approximately 80% of the adult population has antibodies to the BK and JC polyomaviruses. Initial infection is usually occult and may occur via the respiratory tract or through blood transfusions. In renal transplant recipients, however, viral reactivation of the BK polyomavirus (BKPyV) is associated with graft rejection and, possibly, long-term malignancy.

Herein, we study the association between polyomaviruses and non-melanoma skin cancer in both immunocompetent patients and solid organ transplant recipients.

**Methods:** To investigate the presence of polyomavirus in cutaneous SCCs (n=15), BCCs (n=10) and normal human skin (n=10), formalin-fixed, paraffin-embedded 8 µm thick skin sections were treated with an antigen retrieval solution and stained with mouse monoclonal antibodies to the SV40 large T antigen, a hexamer protein unique to polyomaviruses (Calbiochem, San Diego, CA). Using indirect immunofluorescence techniques, fluorescence intensities were graded semi-quantitatively on a four point scale: (-) negative, (+) weak, (++) moderate and (+++) strong.

**Results:** SV40 expression was noted in BCCs (8/10), SCCs from immunocompetent patients (8/10) and SCCs from transplant recipients (4/5). In normal human skin, expression was typically absent to weak. The frequency and intensity of staining were clearly increased in tumour tissue as compared to normal human skin.

**Conclusions:** Preliminary data suggests that polyomaviruses play a role in the development of NMSC. Studies are currently underway to quantitatively measure BK, JC, Merkel and novel polyomavirus mRNA in fresh NMSC tumour samples using real-time reverse transcriptase polymerase chain reaction techniques. By elucidating the role of polyomaviruses in NMSC, molecular insight will be gained into the process of skin carcinogenesis. Ultimately, our findings will be used to identify novel therapeutic targets for the prevention and treatment of NMSC.

## Vitiligo and associated autoimmune disease: a retrospective review of 300 patients

Jakub Sawicki<sup>1</sup> Cheryl F. Rosen<sup>2</sup> S. Siddha<sup>2</sup>

1. Queen's University, Kingston, ON; 2. Toronto Western Hospital, University of Toronto, Toronto, ON

**Introduction:** Vitiligo is the most common disorder causing cutaneous depigmentation. Although the exact etiology is unknown, autoimmunity likely plays a role. There is a known association between vitiligo and other autoimmune diseases. The literature on which specific diseases are associated with vitiligo and the strength of the associations is conflicting, and to our knowledge, no data on the subject exists from a Canadian population.

**Methods, Results:** A retrospective review of the charts of vitiligo patients attending the Toronto Western Hospital phototherapy unit from 1/1/2000 to 8/30/2009 was carried out. Patient demographics, vitiligo clinical features (family history, age of onset, type, severity), associated diseases in the patient and family from an admission checklist, and admission bloodwork (hemoglobin, vitamin B12, TSH, blood glucose, ANA) were recorded. Data was assessed and

statistical analysis conducted where applicable. Three hundred patient charts were reviewed (average age 41.5+/-15.5 years, 47% male, 53% female). The most common patterns of vitiligo were focal localized (45.6%) and generalized vulgaris (34.3%). Regarding disease severity, 80% of patients fell into the lowest quartile of body percentage involvement, with decreasing numbers in progressively increasing body surface involvement quartiles. Sixty nine percent of patients first developed vitiligo when they were older than age 20. A positive family history of vitiligo was present in 30% of patients. Autoimmune thyroid disease was present in 13.0% of patients and 9.7% of first degree relatives, and pernicious anemia was present in 1.3% of patients and 0.7% of first degree relatives, significant increases over the population prevalence. No other differences in prevalence of autoimmune diseases were seen compared to the general population.

**Conclusions:** There was a significantly higher prevalence of autoimmune thyroid disease and pernicious anemia in the vitiligo patients. The current practice of screening bloodwork for patients with vitiligo should be further reviewed for utility.

## A systematic review of adverse cutaneous reactions resulting from the use of ribavirin and interferon

Jonathan Shapero; Nisha Mistry; Richard Crawford  
University of British Columbia, Vancouver, BC

**Introduction:** Interferon and ribavirin have become the gold standard of treatment for chronic hepatitis C. The adverse effects of these medications are thus of significant interest to the specialty of gastroenterology. Many of these adverse effects are skin reactions.

**Methods:** A MEDLINE search was conducted for articles from January 2000 to August 2008 under the headings interferon/adverse effects or ribavirin/adverse effects. This search yielded 2599 results. The results were then manually reviewed for those studies detailing dermatologic findings.

**Results:** Local injection site reactions occur in the majority of patients treated with interferon injection. A number of injection site variants have been described, including cutaneous necrosis, bullous eruptions, granulomatous reactions, injection site alopecia, lupus-like eruptions, and embolia cutis medicamentosa.

The "eczematoid" drug reaction has been estimated to include 59% of all non-injection-site cutaneous eruptions secondary to interferon. The eczema variants of Meyerson's

phenomenon and nummular dermatitis have also been reported.

Over 70 cases of sarcoidosis secondary to interferon have been reported, of which at least 30 have primarily involved the skin. These cases have included tattoo sarcoidosis, sarcoidosis within a scar, and lacrimal gland sarcoidosis causing orbital swelling.

Diffuse hair thinning is estimated to occur in 19% of patients being treated with combination interferon and ribavirin. Less common hair reactions that have been reported are alopecia areata, alopecia universalis, eyebrow and eyelash trichomegaly, generalized hypertrichosis, hair curling, and hair repigmentation.

Other reported adverse reactions include psoriasis, lupus, fixed drug eruption, hyperpigmentation of the tongue, vitiligo, lichenoid eruptions, aphthous ulcers, Grover's disease, dermatitis herpetiformis, delusions of parasitosis, leukocytoclastic vasculitis, pyoderma gangrenosum, atrophie blanche, dermatomyositis, scleromyxedema, polyarteritis nodosa and rosacea fulminans.

**Discussion:** The range of skin reactions caused by interferon and ribavirin is quite distinct from those of most other medications. Interferon has the unusual but perhaps not unexpected property of inducing reactions that resemble non-drug-induced skin diseases. This may be due to an unmasking of a predisposition to diseases like psoriasis, eczema, lupus, sarcoidosis and alopecia areata because of pro-inflammatory properties.

## Volunteering in dermatology- Project Medishare Haiti

Sandy Skotnicki<sup>1</sup> Afsaneh Alavi<sup>2</sup>

1. James R. Nethercott Occupational Health Clinic, Occupational Disease Specialty Program, St. Michael's Hospital, Toronto, ON;  
2. University of Toronto, Toronto, ON

Dr. Alavi and Dr Skotnicki, Dermatologists from Toronto had the honour of working at the Project Medishare field hospital set up at the Port au Prince Airport in Haiti two separate weeks in Feb and March 2010.

Dr. Barth Green and Dr. Arthur Fournier founded Project Medishare for Haiti, Inc. in 1994. They assembled the first team of faculty from the University of Miami Schools of Medicine and Nursing to assess the health care situation in Haiti and explore ways in which they could help improve the health conditions of the people in Haiti.

Dr. Robert Kirsner at University of Miami (through Project Medishare), helped establish the hospital close to the Port

au Prince Airport field days after the earthquake. On Jan 12, 2010, just days after the earthquake, Dr. Alavi received an e-mail stating “there is an urgent need for wound care professionals in Haiti”. Her two years of training and experience as a wound care fellow at University of Toronto and her training with Dr. Kirsner prepared her for the overwhelming clinical and emotional situation. The work was intense with 40 degree tent hospital temperatures and 160 patients, on the floor.

Dr. Skotnicki was introduced to this amazing project while Dr. Alavi was in her teaching clinic this February. The need was for wound care specialties. Never being one to shy away from a challenge, Dr. Skotnicki updated her wound care knowledge and headed off to Haiti.

This presentation will be a joint effort and will reveal our personal journeys of disaster relief in Haiti.

## Off loading the diabetic foot ulcer

N. Craig Stone

Diabetes is the most common cause of peripheral neuropathy in the developed world and foot ulcers is the most common reason for a diabetic to be admitted to hospital. An important component of the treatment of an established diabetic ulcer is to off load the ulcer to encourage healing and prevent recurrence after successful treatment. This presentation will describe the various methods available to off load a neuropathic ulcer and the factors helpful in selecting the best treatment plan.

## Use of clinical photography for educational purposes

Susan M. Swiggum<sup>1</sup> Genevieve Gavigan<sup>2</sup>

1. Canadian Medical Protective Association, Ottawa, ON; 2. University of Ottawa, Ottawa, ON

**Introduction:** Physicians have both an ethical and a legal obligation to keep confidential their patients' personal health information. A physician is not permitted to disclose patient information or confidences, except with the patient's consent or as otherwise authorized by law.

**Methods:** This study reviewed the CMPA experience with medico-legal difficulties arising from the use of clinical photography for educational purposes. A comprehensive review of the health specific provincial privacy legislation was also undertaken.

**Results:** The study addressed the following questions:

- Should express consent be obtained from patients for the use of clinical photography in education?
- What should be included in the express consent discussion and how should it be documented?
- Does public access to the educational program containing the photographs affect the need for express consent?
- Should patients be informed if the photograph will be published online or in print?
- Must a dermatologist obtain patient consent before using patient photographs obtained many years before privacy legislation was enacted?

**Conclusion:** From a risk management perspective, it is prudent for any physician wishing to use clinical photographs for educational purposes to advise patients of this intention, obtain and document patient consent for this particular use in the medical record (which may include executing a written consent form) and remove any personal identifiers from the photographs to the greatest extent possible.

## Needs of dermatologists in treatment decision support of psoriasis patients

Jerry Tan<sup>1</sup> Dawn Stacey<sup>2</sup> Benjamin Barankin<sup>3</sup>  
Robert Bissonnette<sup>4</sup> Wayne Gulliver<sup>5</sup> Harvey Lui<sup>6</sup>  
Neil H. Shear<sup>7</sup> Christine Jackson<sup>8</sup>

1. University of Western Ontario, Windsor, ON; 2. University of Ottawa, Ottawa, ON; 3. The Dermatology Centre, Toronto, ON; 4. Innovaderm Research, Montreal, QC; 5. Memorial University, St. John's, Newfoundland; 6. University of British Columbia, Vancouver, BC; 7. University of Toronto, Toronto, ON; 8. Canadian Skin Patient Alliance, Ottawa, ON

**Background:** There are multiple treatments for psoriasis but little is known about the interaction between dermatologists and their patients in facilitating treatment decisions.

**Purpose:** Our aim was to determine the roles and needs of dermatologists in treatment decision support of psoriasis patients.

**Methods:** Canadian dermatologists were invited to complete an 18 item online survey on treatment of psoriasis patients which included questions on demographics, decisional roles, process uncertainty, factors perceived to be important to patients in treatment decisions, and their needs in decision support.

**Results:** Of 462 invited, 70 dermatologists completed the survey in its entirety (15% response rate). Of these, 51% were female and 70% were in the age range 50-59 years. 63% shared in treatment decision-making while 13% made

the decision for their patients. Dermatologists reported that access to physicians for discussion (86%) and *information about risks and benefits* of treatment (80%) to be of paramount importance in decision-making; with the latter more frequently reported by those > 50 years ( $p = 0.021$ ). Treatment-specific factors considered to be of greatest importance were *side effect profile* (87%) and *cost* (80%); with the latter more frequently reported by those > 50 years ( $p = 0.021$ ). Potential hindrances were patient misconceptions about disease, inadequate patient education materials, patient indecision, and inadequate physician time. Female dermatologists, compared to males, reported *inadequate time to spend with patients* ( $p = 0.039$ ), and *difficulty keeping abreast of new treatments* ( $p = 0.009$ ).

**Conclusion:** Dermatologists share in treatment decision-making with their patients and consider their *accessibility and information on treatment risk and benefits* to be particularly important in the process. Nevertheless, they also acknowledge that *time with patients* and *educational materials* are often inadequate. Age and gender differences exist among dermatologists in their decisional support needs.

**Limitations:** The small sample size of dermatologists may limit generalizability of our findings.

## Cutaneous T cell lymphoma

Kristian Thestrup-Pedersen

University of Aarhus, Aarhus, Denmark

Cutaneous T cell lymphoma is a rare lymphoma of the skin having a fatal course in approx. 20% of patients. The disease is more common in men than in women (2:1). There are great diagnostic difficulties of this disease. Most patients have an indolent, life-long course where therapy includes topical steroids, UV light therapy, topical chemotherapy, retinoids, interferon, chemotherapy and others. The rarity of the disease makes clinical trials very difficult. Although rare the disease is biologically interesting: How can an indolent skin condition develop into a life-threatening disorder? Current knowledge is that there is "genetic instability" in a subset of T lymphocytes enabling them to grow uncontrolled and where the normal part of the immune system is fighting these cells via CD8+ cytotoxic cells. Patients have "T cell clones" among skin-homing T-lymphocytes and new clones can arise. Future studies should aim at investigating DNA repair mechanisms in skin-homing T lymphocytes. The perspective is that if one could phenotypically describe the "Sézary cell" then biologicals could be aimed at these diseased cells with the option of cure.

## Cutaneous secondary oxalosis

Aaron Wong; Shannon Humphrey; Jan P. Dutz

The Department of Dermatology and Skin Science, University of British Columbia, Vancouver, BC

**Introduction:** Secondary hyperoxaluria, also known as secondary oxalosis, occurs when the kidney cannot adequately excrete calcium oxalate, resulting in its deposition in extra-renal tissue, including the skin. The causes of secondary hyperoxaluria include primary hyperoxaluria, ingestion of certain substances, and diseases that modify excretion of calcium oxalate, such as chronic renal failure and malabsorption due to intestinal bypass surgery. Clinically, cutaneous oxalosis is varied in morphology and depends on the site of calcium oxalate deposition. Intravascular deposition causes vascular insufficiency and results in livedo reticularis, acrocyanosis, Raynaud's phenomenon, peripheral gangrene, ulcers and necrosis. Extravascular deposition results in miliary deposits, and both dermal and subcutaneous nodules. Under the microscope, calcium oxalate appears as von Kossa stain positive, birefringent crystals in the blood vessel walls, reticular dermis, and subcutaneous fat. Treatment consists of therapy targeted towards the underlying secondary oxalosis and the ulcer itself. Thus, reducing levels of calcium and general, conservative wound care measures are the mainstays of treatment.

**Methods and Results:** A 30-year review of available pathology reports from the Vancouver General Hospital revealed 18 cases of secondary hyperoxaluria. Two cases of cutaneous oxalosis were found. Both patients were morbidly obese adults who had similar underlying conditions that included hemodialysis-dependent renal failure and intestinal bypass surgery for weight loss with subsequent malabsorption. They both presented with persistent leg ulcerations that were refractory to conservative treatment.

**Conclusions:** The diagnosis of cutaneous secondary oxalosis should be considered in those who have cutaneous signs of vascular insufficiency and co-existing renal failure or previous intestinal bypass surgery. Although extremely rare, secondary oxalosis can manifest itself in the skin and should be considered in patients who present with leg ulceration or signs of vascular insufficiency.

## Visualization of nerve structures in the skin of patients with vitiligo vulgaris

Richard Yu; Ming-Wan Su; Youwen Zhou

University of British Columbia, Department of Dermatology and Skin Science, Vancouver, BC

**Learning objective:** To understand that vitiligo is not potentially associated with defect in myelination or changes in the number and distribution of peripheral nerve axons

**Background:** Vitiligo is an acquired disease characterized by the death of melanocytes, the principle pigment-producing cells in the skin. The exact pathogenesis of the disease is unclear and may potentially involve at least the nervous and immune systems. Preliminary data from our transcriptome analyses of vitiligo lesional skin revealed significant down-regulation of several neural markers.

**Hypothesis and Objectives:** Based on our preliminary data we hypothesized that in addition to the loss of melanocytes, vitiligo is associated with decrease/alteration of neural structures such as peripheral nerve axons and merkel cells, which are derived from the neural crest along with melanocytes.

**Materials and Methods:** To test our hypothesis we conducted immunofluorescence studies on matching sets of skin biopsies (normal, lesional and therapy-repigmented skin) from vitiligo patients. We used various neural markers such as neural cell adhesion molecule (NCAM/CD56), neurofilament (NF), and protein gene product 9.5 (PGP9.5). We also co-stained the nerve structures with melanocytes (Melan-A) and merkel cells (Keratin 20). The slides were visualized either with a Zeiss Axiovert inverted fluorescence microscope or a Leica confocal microscope.

**Current Results:** Current results revealed no significant difference in the number of NF and PGP9.5-positive structures between normal, repigmented and lesional skin of corresponding vitiligo patients. Since both NF and PGP9.5 stain peripheral nerve axons, our results indicated that the suspected neural defect is not in nerve fibers. In addition, no significant difference was observed in MBP stain, suggesting that there are no defects in myelin or myelinating Schwann cells. We are currently in the process of gathering results on additional nerve structures including merkel cells.

**Conclusion:** This is the first systematic study on the nerve structures in vitiligo skin lesions. Preliminary results have not demonstrated significant changes in the number or distribution of nerve axons in lesional skin. Further studies on additional nerve structures and cells derived from the neural crest during embryonic development should

provide a more complete understanding on the role of neuronal structures in vitiligo pathogenesis.

## Cryotherapy vs diphenylcyclopropanone (DPCP) for treatment of plantar, palmar and periungual warts: a prospective randomized study

Sophie Zérounian<sup>1</sup> Dominique Hanna<sup>2</sup> Martin Gilbert<sup>1</sup> Anne-Marie Drolet<sup>1</sup>

1. Université Laval, Québec, QC; 2. Université de Sherbrooke, Sherbrooke, QC

**Introduction:** Warts are a common benign affection of the skin caused by Human Papilloma Virus. Even if the standard treatment is cryotherapy, no clinical trials have proven its efficacy. Moreover, it is painful and associated with some side effects such as infection, scarring and post-inflammatory skin color changes. In the past years, many clinicians have recognized the efficacy of locally applied DPCP in the treatment of warts.

**Methods and Results:** We conducted a prospective clinical trial, with random allocation, in order to compare the efficacy of locally applied DPCP and cryotherapy for the treatment of plantar, palmar and periungual warts as per standard use. Inclusion criteria were patients of at least 18 years old, presenting at least one palmar, plantar or periungual wart. Ninety-seven patients were recruited between October 2003 and January 2008. Treatments were given at a 2 week interval for a maximum of 6 treatments. At each visit, the number and site of warts were noted and the diameter of each wart was measured. We also included a follow-up visit 2 months after the last treatment to evaluate recurrences.

Of the 97 patients, 25 (55.5%) in the cryotherapy group were cured compared to 10 (19.2%) in the DPCP group. The location of the wart did not have any significant impact on the results. Even after adjustment for the number of warts and the size of the biggest wart, cryotherapy was still more effective than the DPCP.

**Conclusion:** Cryotherapy is three times more effective than DPCP for the treatment of plantar, palmar and periungual warts. The site of the wart, the number of warts and the size of the largest wart have no impact on the results.

None of the authors has any kind of conflict of interest.

## Over expression of Sezary specific genes in mycosis fungoides skin biopsies

Yaohua Y. Zhang<sup>1,2,3</sup> Yang Wang<sup>1</sup> Mingwan Su<sup>1,2</sup>  
Jinhua Xu<sup>3</sup> Zhizhong Zheng<sup>3</sup> Youwen Zhou<sup>1,2</sup>

1. Chieng Genomics Centre, Laboratory of Predictive Medicine and Therapeutics, Vancouver Coastal Health Research Institute, BC, Canada, Vancouver, BC, Canada; 2. Department of Dermatology and Skin Science, University of British Columbia, Vancouver, BC, Canada; 3. Department of Dermatology, Huashan Hospital, Fudan University, Shanghai, China

**Background and Objectives:** Mycosis fungoides (MF) and its leukemic variant, Sezary syndrome (SS), are the most common cutaneous T cell lymphomas (CTCL), with their diagnosis remaining a major challenge in clinical practice due to the lack of specific and sensitive markers. Our previous study revealed a number of Sezary cell specific genes (SSGs) by high-density DNA microarray analyses. The purpose of this study is to evaluate if these SSGs are also found in earlier staged MF skin lesions.

**Materials and Methods:** Skin biopsies were obtained from patients with cutaneous MF (N=15), benign inflammatory dermatosis such as psoriasis and chronic dermatitis (N=15) and healthy volunteers (N=21). The mRNA was used for quantitative reverse transcriptase coupled polymerase chain reaction (RT-PCR) on the 6 most significant SSGs (SSG1 to SSG6).

**Results:** The vast majority of SSGs were not significantly present in earlier staged MF skin lesions, with exception of two. SSG1 which is a transcriptional factor involved in early stage T cell development was up-regulated in skin biopsies of 13 out of 15 MF patients where as the second, which is a TNF alpha-induced gene was up-regulated in 2 out of the 15 MF skin biopsies.

**Conclusions:** Early staged MF skin biopsies contain markers that are found in Sezary cells, suggesting MF skin lesions contain cells that give rise to Sezary cells. These SSGs may serve as diagnostic markers and therapeutic targets for treatment of CTCL.

## Transcriptome analyses reveal Schwann cell degeneration in vitiligo

Y Zhou<sup>1,2</sup> T Yu<sup>1</sup> S Wei<sup>1</sup> MW Su<sup>1</sup> Y Wang<sup>1</sup> M Gao<sup>2</sup> Y Liang<sup>1</sup>  
H Lui<sup>1</sup> A Xu<sup>3</sup> X Zhang<sup>1</sup>

1. Department of Dermatology and Skin Science, University of British Columbia, Vancouver, BC; 2. Institute of Dermatology, Anhui Medical University, , China; 3. No 3 People's Hospital, Hangzhou, China

**Background and Objectives:** Vitiligo is a common depigmentation condition characterized by destruction of

melanocytes. The objective of this investigation is to define if there are other cellular defects, in addition to melanocyte death, in vitiligo affected skin.

**Methods:** Gene expression changes were determined using paired lesional and non-lesional skin biopsies from 14 patients with vitiligo by DNA microarray analyses using 41,059 gene probes to reveal gene expression defects in lesional skin not attributable to melanocyte death. After quantitative polymerase chain reaction-based expression confirmation in additional 34 pairs of vitiligo skin biopsies, the cellular origin of these genes were determined by immunohistochemistry and confocal immunofluorescence microscopy.

**Results:** Eleven genes showed significant deficiency in expression in vitiligo lesional skin. The majority of these encode melanocyte markers. However, two genes were not explained by melanocyte loss. Immunofluorescence analyses using multi-color labeling established that the expression deficiency of these two genes were the result of degeneration of non-myelinating Schwann cells normally present in the suprafacial dermis of lesional skin.

**Conclusion:** Since Schwann cells and melanocytes share a common neural crest branch of progenitor cells during embryonic development, our data suggest a *neural crest branch destruction* hypothesis for vitiligo pathogenesis.

# Poster Presentations

## Treatment of recalcitrant palmoplantar psoriasis using alefacept in combination with excimer laser

Nawaf Al-Mutairi

Kuwait University, Farwaniya, Kuwait

**Background:** Palmoplantar Psoriasis (PPPs) is a chronic recalcitrant disease, often resistant to the conventional therapies. It has considerable morbidity and seriously affects the quality of life of the patients. Recently, alefacept in combination with narrow band ultraviolet B has shown better antipsoriatic effects.

**Objective:** To evaluate the efficacy, safety and tolerability of monochromatic excimer laser in combination with alefacept for the treatment of recalcitrant palmoplantar psoriasis.

**Methods:** Twenty two adult patients diagnosed clinically as palmoplantar psoriasis of plaque type were treated with injection alefacept given 15 mg I/M once a week for 12 weeks and monochromatic excimer laser (MEL) thrice weekly, for a maximum of 18 sessions. Modified Psoriasis Area and Severity Index (PASI) was calculated at the baseline and then every 2 weeks during the 6 week treatment period with MEL and then at week 12 and at week 24.

**Results:** Seventeen (77.27%) out of the 22 patients showed a remarkable reduction in modified PASI scores (achieved PASI 75) by the end of 6 weeks, with 12(54.54%) patients achieving PASI 75 as early as by the end of 2 weeks. Three (13.63%) patients achieved PASI 100 at the end of 2 weeks. Also, the results were maintained in all, except 2 patients at the end of 12 weeks follow up after stopping the treatment. The mean number of treatments to achieve PASI 75 was 8.3. The mean cumulative dose per plaque was 8.6 J/cm<sup>2</sup>, with doses ranging from 2.3 to 19.8 J/cm<sup>2</sup>.

**Conclusions:** The results suggest that alefacept when given in combination with excimer laser can lead to faster clearance of psoriasis with minimal side effects. And the combination treatment can be considered as a suitable therapeutic option for the treatment of plaque types of PPPs.

## Exploring the impact of atopic dermatitis on the social relationships of Canadian adolescents

Katie Armstrong<sup>1</sup> Miriam Weinstein<sup>2</sup>

1. University of Toronto, Toronto, ON; 2. The Hospital for Sick Children, Toronto, ON

**Introduction:** Atopic dermatitis (AD) is an increasingly common, chronic disease of Western nations. AD typically appears in early childhood, and patients may experience intermittent flare-ups often into adulthood. Scientific literature concerning the affects of AD on social relationships is sparse. This study explores why and how AD impacts the social relationships of Canadian adolescents. Social relationships are an important determinant of health. The health risks associated with lower levels of social integration are comparable to those of smoking, hypertension and obesity. Adolescents are a crucial target population because this is a critical period for the development of self-esteem and where peer-relationships often take on a heightened importance. The goal of the study is to explore the social relationships of Canadian adolescents with AD

**Methods:** This study used the qualitative research method of grounded theory. Grounded theory is an inductive approach to research that builds theory from interview data. According to grounded theory, the authors broadly "explore" and then develop theories from the data collected. Data collection consisted of in-depth semi-structured interviews with adolescents with AD. Interviews were anonymized and transcribed. Data analysis was cumulative and concurrent throughout the data collection period. A grounded theory approach was used to uncover emergent themes from the data.

**Results:** This study found that the reactions of friends help explain why AD impacts social relationships. Overall, it is the balance of supportive and negative reactions from friends that determine the level of perceived peer-acceptance and seem to dictate how AD impacts social relationships and interactions. Individuals who experience high levels of peer acceptance are less likely to avoid, feel self-conscious or hide their AD during social situations.

**Conclusions:** Understanding the ways in which AD contributes to differences in social relationships including the potential for diminished peer- and self-acceptance may inform current clinical care.

## A melting fat mystery

Nicolas Aubut<sup>1</sup> Marie-Michèle Blouin<sup>1</sup> Éric Gagné<sup>1</sup>  
Francine Caron<sup>2</sup> Isabelle Auger<sup>2</sup>

1. CHUQ - Hôtel-Dieu de Québec, Québec, QC; 2. CHUL - CHUL, Québec, QC

**Introduction:** Panniculitis in infancy is quite uncommon. It usually follows an unpredictable course and is associated with atypical clinical manifestations.

**Methods:** We report a case of a 15-month old boy who presented with a two month history of subcutaneous erythematous/blueish nodules on the lower limbs. There was a rapid and progressive onset of indurated and atrophic plaques on the lower limbs and dorsum of right hand in the previous week. The child had always been asymptomatic and without any movement restriction associated with his condition. There was no history of fever or any systemic symptom.

A skin biopsy was performed. There was an important inflammatory process composed mainly of lymphohistiocysts and eosinophils (to a lower extent) concentrated in the subcutis. The histological picture was consistent with a lobular and lipogranulomatous panniculitis. Lipophages were seen at the periphery of the lipid vacuoles. These findings were compatible with a diagnosis of lipophagic panniculitis of childhood. Other entities were part of the histological differential diagnosis, namely histiocytic cytophagic panniculitis, acquired inflammatory lipodystrophy and non specific panniculitis occurring in the setting of an inflammatory or auto-immune condition.

The subsequent evolution, following a 10-day course of oral cephalexin, was positive. There was a decrease in the size and number of plaques, along with a complete resolution of the inflammatory component. However, the child still bears the sequels of lipoatrophy but without any related functional impairment.

**Conclusion:** The first cases of lipophagic panniculitis of childhood were described by Winkelmann in 1989. It is a distinct subtype of febrile panniculitis of childhood characterized by an abrupt onset of erythematous plaques and nodules on the limbs. The eruption usually precedes a subsequent lipoatrophy phase. The latter tends to remain chronic. Affected children are generally asymptomatic.

## The introduction of Mohs micrographic surgery in Eastern Ontario

Renee Beach; James Walker; Adam Mamelak

University of Ottawa, Ottawa, ON

**Introduction:** Mohs micrographic surgery is well recognized as the most effective modality for treating non-melanoma skin cancers. Despite its proven efficacy and the increasing incidence of skin cancer in Canada, the proliferation of Mohs surgery services and physicians offering this technique in Ontario has not occurred. Many have speculated that this lack of resources might result in increased patient morbidity, but few studies have been able to measure these outcomes.

**Methods:** The first 150 cases performed at the new Mohs Surgery and Surgical Dermatology Clinic at the Ottawa Hospital were directly compared to the first 150 cases performed at the beginning of the academic year at Derm-Surgery Associates in Houston, Texas, a recognized training site of the American College of Mohs Surgery. The following parameters were examined: diagnosis, primary or recurrent disease, pre-op size, number of stages, post-op size, and type of repair.

**Results:** Basal cell carcinoma was the most common type of tumor treated Ottawa. The percentage of recurrent tumors treated by Mohs in Ottawa was significantly greater than those treated in Houston. Furthermore, significant increased pre-op and post-op sizes, as well as increased number of stages were observed in the patients treated in Ottawa compared to Houston, Texas. Surgical defects were more commonly repaired with flaps and grafts in Canada compared to the U.S.

**Conclusions:** The size of the tumors and extent of surgery required to treat patients with non-melanoma skin cancer is greater in Ottawa compared to Houston, Texas.

## Effect of ustekinumab on glucose metabolism in moderate to severe psoriasis patients treated with ustekinumab: results from the Phoenix trials

R Bissonnette<sup>1</sup> K Papp<sup>2</sup> P O. Szapary<sup>3</sup> M C. Hsu<sup>3</sup> N Korman<sup>4</sup>  
R G. Langley<sup>5</sup>

1. Innovaderm Research, Inc., Montreal, QC; 2. Probitry Medical Research, Waterloo, ON; 3. Centocor Research & Development, Inc., Malvern, PA, United States; 4. University Hospitals Case Medical Center, Cleveland, OH, United States; 5. Dalhousie University, Halifax, NS

**Objective:** To report the effects of ustekinumab (UST) on fasting plasma glucose levels (FPG) and glycosylated hemoglobin (HbA1c).

**Methods and Results:** PHOENIX 1 (n=766) and PHOENIX 2 (n=1230), randomized placebo (PBO) controlled trials, evaluated UST in psoriasis patients. Patients were randomized to subcutaneous UST (45 or 90 mg doses at weeks 0 and 4, followed by 45 or 90 mg q12 weeks) or PBO. Patients in the PBO group were crossed over to 45 or 90 mg at weeks 12 and 16 followed by q12 week dosing. FPG and HbA1c (assessed at a central laboratory) were evaluated at baseline and week 12; HbA1c was also assessed at weeks 52 and 76. The effects of UST were evaluated in patients stratified by baseline FPG as follows: diabetes mellitus (medical history or FPG  $\geq 7.0$  mmol/L); impaired fasting glucose (IFG or pre-diabetic) FPG  $\geq 5.6$  mmol/L to  $< 7.0$  mmol/L; normal glucose FPG  $< 5.6$  mmol/L. The effects of UST on glycemia were evaluated by changes in FPG from baseline at week 12 and the changes in HbA1c up to 76 weeks. At baseline, 13.1% of patients had diabetes and 14.9% had IFG. Within each category, the mean baseline FPG levels [mean(SD), mmol/L] and HbA1c [mean(SD)] among the treatment groups were comparable [diabetics, mean FPG and HbA1c were 8.14(2.61) and 7.7%(1.71%); for those with IFG, 6.0(0.3) and 5.9%(0.50%); for those with normal glucose, 4.8(0.4) and 5.5%(0.40%), respectively]. The mean changes from baseline in FPG levels at week 12 [mean(SD), mmol/L], for the PBO and UST combined groups, respectively, were: -0.18(1.90) and -0.44(2.84), diabetics; -0.26(0.76) and -0.27(0.78), IFG; 0.13(0.59) and 0.20(0.58), normal patients. The mean changes in HbA1c from baseline at week 12 [mean(SD)], for the PBO and UST combined groups were: -0.08%(0.83%) and -0.14%(1.12%), diabetic; 0.03%(0.26%) and 0.05%(0.26%), IFG; 0.06%(0.20%) and 0.08%(0.24%), normal patients, respectively. Through week 76, the mean change from baseline in HbA1c [mean(SD)] for the UST combined groups was -0.29%(1.34%), diabetics; 0.08%(0.39%), IFG; and 0.05%(0.29%), normal patients.

**Conclusions:** In pooled analyses, UST did not have a significant effect on glucose metabolism over 1.5 years.

## Photodynamic therapy with methylaminolevulinate without occlusion and with an incubation time of 90 minutes in the treatment of actinic keratoses

Robert Bissonnette; Chantal Bolduc; Catherine Maari; Simon Nigen

Innovaderm Research Inc., Montreal, QC

**Introduction:** Photodynamic therapy (PDT) with methylaminolevulinate (MAL) is approved in several countries for the treatment of actinic keratoses (AK). Facial AKs are sometimes numerous, widespread, and ill defined. In this case the application of MAL cream and occlusive material to all lesions is difficult. The objectives of this trial are to study the safety and efficacy of MAL-PDT in patients with AK when MAL is applied to the entire face, without occlusion, and with an incubation time of 90 minutes.

**Methods and Results:** This is a single center Canadian study with a target sample size of 20 patients. To be eligible for this trial, patients must have at least 5 facial non-hyper-trophic actinic keratoses at baseline. All patients receive 2 to 4 g of MAL cream applied to the entire face, followed 90 minutes later by exposure to 37 J/cm<sup>2</sup> of red light. If necessary, a second MAL-PDT treatment is performed at Week 4. Patients are evaluated at Week 4 and Week 12 by counting mapped AK and by using a photometric assessment of photo-aging/photodamage. A total of 10 subjects have completed Week 12. Preliminary data for these first subjects are presented. The mean number of facial AKs was 11.4 at baseline and 2.8 at Week 12 which represents a decrease of 75.4%.

**Conclusions:** Preliminary results suggest that PDT with MAL applied to the entire face, without occlusion, and with an incubation time of 90 minutes could be effective for the treatment of actinic keratoses.

The authors of this abstract have received grants and honoraria from Allergan, DUSA Pharmaceuticals, Galderma, La Roche-Posay, Photocure ASA, QLT, Quest Pharmatech and Stiefel.

Research funded by Galderma Canada Inc.

## An atypical case of palisaded neutrophilic granulomatous dermatosis

Catherine Boivin; Marilyn Caron; Diane Tran; Anne-Laure Chetaille; Isabelle Auger

CHUQ-CHUL, Québec City, Quebec, QC

**Introduction:** Palisaded neutrophilic granulomatous dermatitis (PNGD) is a rare skin eruption associated with a wide variety of autoimmune diseases. The clinical and histological presentation is variable, suggesting a disease spectrum rather than a defined entity. We describe a case of PNGD presenting as recurrent episodes of exquisitely painful lesions, without any identified underlying systemic disease.

**Case Report:** This 20-year-old girl has been presenting, for the past 4 years, repeated acute episodes of extremely painful papules and nodules on her fingers, arms and face associated with arthralgia. Lesions appear abruptly and last several days, often resolving spontaneously. Pain management requires high doses of IV narcotics and intensive care unit surveillance. No fever, leukocytosis or elevation of the sedimentation rate is associated with these episodes. As response to corticosteroids is unsatisfactory, control is achieved with dapsone monotherapy. No associated disease has been detected at this time after intensive investigation. Histology shows an intense neutrophilic dermatosis with leukocytoclasia and necrobiosis of the collagenic matrix, compatible with a palisaded neutrophilic granulomatous dermatosis.

**Discussion:** PNGD is a recently described entity postulated to be immune-complex mediated. Early histopathology shows diffuse dermal infiltration of neutrophils with leukocytoclastic debris and focal degeneration of collagen fibers, as was observed in our patient. Typically, fully developed lesions show palisaded granulomas. This late histopathologic finding was not found in our case, perhaps not unrelated to the acute and rapidly self-resolving clinical presentation. This reinforces the proposal that PNGD represents a clinicopathological spectrum rather than a defined entity. Clinically, variable degrees of pain have been described. However, to our knowledge, this is the first report of severe pain requiring such aggressive management. PNGD has rarely been described as an isolated disease, and the presented case supports this finding.

**Conclusion:** PNGD is a rare cutaneous manifestation of connective tissue disorders. The presented case supports the notion of a disease spectrum, and corroborates the possibility of an isolated disorder.

## Vulvar lymphedema: possible gynaecological manifestation of bowel disease

Emilie G. Bourgeault; Lyne Giroux

Northern Ontario School of Medicine, Sudbury, ON

**Introduction:** Vulvar lymphedema is a disfiguring disorder characterized by progressive swelling and fibrosis of the skin and subcutaneous tissue due to dysfunctional regional lymphatics. Morphological changes associated with this condition range from mild hyperkeratosis of the epidermis to the verrucous changes seen in long-standing lymphedema. The few cases of vulvar lymphedema reported in the literature are mostly associated with gynaecologic cancers and radiation; however, other elements to consider in such a presentation include congenital lymphatic defect, contact dermatitis, chronic infection, trauma, obesity, pregnancy and granulomatous disease.

**Methods and Results:** A healthy 20-year old woman with a family history of Crohn's disease presented with a 2-year history of progressive edema of the labia majora. The right labium was biopsied. Histopathology revealed an edematous dermis with prominent dilated vascular spaces. Immunohistologic analysis with D2-40 marker characterized the spaces as lymphatic vessels. Also noted in the specimen was perivascular and interstitial inflammation infiltrates of lymphocytes and plasma cells, as well as irregular acanthosis of the squamous epithelium. There was no evidence of cytologic atypia or granulomatous inflammation. Direct immunofluorescence was negative. Skin biopsy cultures identified Group B streptococcus. No fungi or mycobacteria were present. Imaging of the abdomen and pelvic organs ruled out gross anatomical pathology.

**Conclusion:** These findings are compatible with a diagnosis of vulvar lymphedema, a rare condition that is physically and psychologically distressing to a patient. In the present case, although most risk factors have been excluded, a diagnosis of Crohn's disease is still being investigated. Current management protocol for this patient includes prophylaxis treatment for recurrent infections combined with intralesional corticosteroids to target the edema and fibrosis. This has reduced the bulk and continued progression of the lesion. Oral steroids will hopefully allow full remission; however, surgical debulking might be required in the future for cosmetic purposes.

## Scleredema adultorum of Buschke type II: a fulminant course

Jérôme Coulombe<sup>1</sup> Dominique Hanna<sup>1</sup>  
Edmond Rizcallah<sup>2</sup> Donald Echenberg<sup>3</sup> Bruno Maynard<sup>1</sup>

1. CHUS, Division of Dermatology, Department of Medicine, QC, Canada, Sherbrooke, QC; 2. CHUS, Department of Pathology, Sherbrooke University, QC, Canada, Sherbrooke, QC; 3. CHUS, Division of Internal Medicine, Department of Medicine, Sherbrooke, QC, Canada, Sherbrooke, QC

**Introduction:** Scleredema is an uncommon condition characterized by diffuse skin induration of the upper trunk, thickened dermis and deposition of mucin. Three types have been described: following an infection (type I), associated with monoclonal gammopathy (type II) and in the setting of non-insulin-dependent diabetes mellitus (type III).

**Methods and Results:** A 69-year-old man had a three-week-history of dysphagia, left shoulder pain and painless skin stiffness of the upper body. He had no recent infection, diabetes or thyroid disease. No history of Raynaud's phenomenon. No weight loss. Physical examination revealed symmetrical diffuse non-pitting woody induration of the skin of his neck, trunk and shoulders. There was no acral involvement, macroglossia or telangiectasia.

Skin biopsy demonstrated thickening of the reticular dermis with large collagen bundles separated by an alcian blue positive mucoid material. Congo red and toluidine blue stains were negative. Investigations showed anemia, hypercalcemia, a serum monoclonal IgG kappa level of 26,3 g/dl, pathologic fracture of the left humerus, several lytic bone lesions and 10% plasma cells at bone marrow biopsy. Two weeks later, the patient died of acute renal failure and respiratory distress despite optimal therapy.

**Conclusions:** Scleredema adultorum of Buschke in association with multiple myeloma is rare. Our patient displayed all the characteristic findings of this clinical entity, except the usual smoldering installation of the scleredema. We hypothesize that the acute presentation and fulminant course are the result of the severity of the underlying neoplasm.

## Systematic review of melanoma incidence and prognosis in solid organ transplant recipients

Erin J. Dahlke; An-Wen Chan  
University of Toronto, Toronto, ON

### Introduction:

As solid organ transplantation becomes more commonplace and as transplant recipients' lifespans increase, the

issue of skin cancer in this immunosuppressed population becomes ever more pertinent. The increased risk of non-melanoma skin cancer in organ transplant recipients has been well-documented, but the epidemiology of melanoma is less clear. We conducted a systematic review of the incidence and outcomes of melanoma in transplant recipients.

**Methods:** MEDLINE and EMBASE were searched to identify articles related to melanoma and organ transplantation. We included studies that estimated the incidence or relative risk of melanoma in a defined cohort of organ transplant recipients. We also summarized articles reporting outcomes data for melanoma in this population, including pre-transplant melanoma. The primary outcomes of our review were the incidence, relative risk, stage, and survival of melanoma. Data were summarized descriptively and meta-analysis was not performed due to heterogeneity of included studies.

**Results and Conclusion:** The search strategy yielded 568 citations. To date, over 50 articles have been reviewed in full text. The published literature on risk of melanoma in organ transplant recipients varies based on geography, ranging from no significantly increased risk in parts of Northern Europe to a 4-fold increased risk in Australia. While 24 studies report incidence of melanoma in a transplant population, only a small proportion are adequately powered and confounding variables limit reliable interpretation. For prognosis of melanoma in the transplant recipient population, a diagnosis of T3 or T4 melanoma may portend a worse outcome, although this is still not yet fully elucidated. Given these preliminary findings, regular skin examination and a heightened decision to biopsy suspicious lesions are warranted in this group. Large, population-based studies focusing on melanoma in the organ transplant population are needed to better understand this important complication of chronic immunosuppression.

## Medical and surgical management of hidradenitis suppurativa-what works?

Bill Danby

Dartmouth Medical School, Manchester, NH, United States

Medical management of Hidradenitis Suppurativa requires aggressive hormonal control. Details will be presented to include hormone blockade, reduction of endogenous and endogenous androgen sources, their effects and their relative effectiveness.

Surgical management has traditionally consisted of wide en bloc excision. There is a need for a technique for the

lesions occupying the middle ground between the occasional inflamed nodules of Stage I and the sinus tracts and hypertrophic scarring of Hurley Stage III. Unroofing is invaluable here, and the instrumentation, preparation, in-office surgical technique, followup and its advantages will be described in detail.

## Sister Mary Joseph's nodule

Sandra Davar<sup>1</sup> Bruno Maynard<sup>2</sup> Edmond Rizcallah<sup>2</sup>  
Dominique Hanna<sup>1</sup>

1. CHUS, Division of Dermatology, Department of Medicine, Université de Sherbrooke, Sherbrooke, QC; 2. CHUS, Division of Pathology, Department of Medicine, Université de Sherbrooke, Sherbrooke, QC

**Introduction:** Sister Mary Joseph's Nodule represents an unusual clinical feature of metastatic deposit at the umbilicus originating from a primary intra-abdominal malignancy.

**Methods:** A 75-year-old man with vesical and prostatic cancers treated 2 years prior presented a non painful, non pruritic and non purulent umbilical lesion evolving for an unknown period. Dermatological examination revealed a firm red to violaceous, crusted haemorrhagic 1,5 x 2,0 cm umbilical nodule with no other cutaneous lesion present. Umbilical and vesical biopsies as well as a PET scan were performed.

**Results:** Umbilical biopsy revealed a carcinoma from urothelial origin. However, immunohistochemistry studies suggested a squamous cell carcinoma. Clinically, the lesion did not support a diagnosis of primary cutaneous squamous cell carcinoma; in addition, the PET scan revealed a caption at the ureterovesical junction which was compatible with a vesical cancer relapse.

**Conclusion:** Sister Mary Joseph's Nodule is a rare cutaneous metastasis of internal malignancy and its recognition is of great importance to the dermatologist since it may be the first presenting sign in a patient with an unknown malignant disease. Our case outlines the importance of clinical and histopathological correlation in order to obtain an accurate diagnosis.

## Fibrates-an alternative to scalpel: a case of "benign" symmetric lipomatosis treated with fenofibrate

Marie-Claude Dionne<sup>2</sup> Stephanie Turmel<sup>2</sup> Jean Bernard<sup>3</sup>  
Claude Gagné<sup>1</sup> Monica Stanciu<sup>2</sup>

1. Service of Lipidology, Department of Medicine, CHUQ, Québec, QC; 2. Université Laval, Québec, QC; 3. Dermatology Department, CHUL, Québec, QC

**Background:** Benign symmetric lipomatosis, also known as Madelung disease or Launois-Bensaude syndrome, is a rare disease characterized by the progressive growth of multiple non encapsulated lipomatous masses located in the face, neck, upper arms and trunk. Most frequently diagnosed in middle-aged males, it is often associated with ethanol intake and metabolic diseases, such as diabetes. Although stated as benign, this condition can sometimes be complicated by life threatening aerodigestive tract compression. The pathogenesis remains unclear, but postulated hypothesis include mitochondrial mutations and excess lipid accumulation in the embryonal residues of brown adipose tissues. Surgery is considered the most effective treatment along with conservative management of metabolic abnormalities. Only a few authors suggested the use of fenofibrate as being a useful therapeutic option.

**Case:** We report the case of a 67-year old diabetic male patient that consulted our dermatology clinic with progressive, multiple, subcutaneous masses on the face, neck, axillary folds and trunk. One of his most important symptoms was progressive and severe dyspnea (class 3-4/4). Consequently, a chest CT scan was performed and revealed a mediastinal lipomatous mass compressing the trachea. After a few months of treatment with fenofibrate, his symptoms markedly improved as well as his adipose tissue masses to the point of avoiding surgery and with concomitant improvement of his quality of life.

**Conclusion:** Until recently, the unique therapeutic option for multiple symmetric lipomatosis was a surgical one. According to these findings, fibrates can now offer an interesting solution for patients with this condition, especially in severe cases, thus appearing as a promising alternative to surgery.

## Eyebrow regrowth in frontal fibrosing alopecia patients treated with intralesional triamcinolone acetonide

Jeff C. Donovan<sup>1</sup> Aman Samrao<sup>2</sup> Beth S. Ruben<sup>2</sup>  
Vera H. Price<sup>2</sup>

1. University of Toronto, Toronto, ON; 2. University of California San Francisco, San Francisco, CA, United States

**Background:** Frontal fibrosing alopecia (FFA) is a primary lymphocytic cicatricial alopecia which causes hair loss of the fronto-temporal hairline and often the eyebrows. Treatments help to reduce the symptoms and signs of disease and slow disease progression, but rarely stimulate hair regrowth.

**Objectives:** To evaluate the benefit of triamcinolone acetonide injection in the treatment of eyebrow hair loss in patients with FFA.

**Patients/Methods:** A retrospective chart review over the six year period 2004-2009 was performed to identify FFA patients with partial or complete eyebrow loss who had at least one session of triamcinolone acetonide eyebrow injections. Medical records were evaluated to identify patient demographic information, treatments, number of eyebrow injection treatments, and documentation of eyebrow regrowth at follow-up.

**Results:** 10 female patients with partial eyebrow hair loss and 1 female patient with complete loss received eyebrow injections with triamcinolone acetonide (10 mg/mL). Patients concurrently received systemic therapy, most commonly with hydroxychloroquine. All patients with partial eyebrow hair loss (10/10) showed evidence of regrowing eyebrows at follow-up appointments. Two patients were sufficiently satisfied with the regrowth after 2 and 17 injection sessions, respectively that they discontinued injections; 2 patients developed further eyebrow hair loss while continuing to receive injections. One patient who presented with complete eyebrow loss showed no regrowth with corticosteroid injections.

**Conclusions:** Eyebrow injection with triamcinolone acetonide was associated with initial hair regrowth in all patients with partial eyebrow hair loss. Early diagnosis and treatment of FFA-associated eyebrow hair loss may not only slow eyebrow hair loss but may also stimulate eyebrow regrowth.

## Angiolymphoid hyperplasia with eosinophilia: a case report

Anne-Marie Drolet<sup>2</sup> Dominique Hanna<sup>2</sup>  
Edmond Rizcallah<sup>1</sup> Bruno Maynard<sup>2</sup>

1. Division of Pathology, Department of Medicine, Université de Sherbrooke, Sherbrooke, QC; 2. Division of Dermatology, Department of Medicine, Université de Sherbrooke, Sherbrooke, QC

**Introduction:** Angiolymphoid hyperplasia with eosinophilia (ALHE) is a rare vascular disorder of unknown pathogenesis, characterized by intradermal or subcutaneous reddish-brown papules and/or nodules, typically occurring on the head and neck.

**Methods:** We describe a 40-year-old female patient presenting with longstanding mildly pruritic nontender erythematous papules on the right postauricular area. Lymph nodes were not enlarged. A diagnosis of ALHE was suspected and the major differential diagnosis has to be made with Kimura's disease. Similarities and differences between these two diseases will be outlined.

**Results:** Histopathological examination revealed thick-walled blood vessels with turgescence endothelial cell wall and an inflammatory infiltration composed of lymphocytes and eosinophils. There was no lymphoid follicle neither eosinophilic abscess. The findings were consistent with the diagnosis of ALHE.

**Conclusion:** ALHE is a rare benign dermatological disease to be clinically and histopathologically distinguished from Kimura's disease. There has been no consensus on the optimal treatment of ALHE and various therapeutic modalities have been reported in the literature with variable success.

## Papular psoriasis: a psoriasiform eruption associated with ANA antibodies, TNF inhibitor therapy and systemic lupus erythematosus

Jan P. Dutz<sup>1</sup> Cristián Vera-Kellet<sup>2</sup>

1. University of British Columbia, Vancouver, BC; 2. Pontificia Universidad Católica de Chile, Santiago, Chile

**Introduction:** Psoriasis and SLE are well described disease entities with cutaneous manifestations. The co-existence of these diseases in individual patients is thought to be infrequent. Few patients with psoriasis are ANA+. We have previously described the new onset of psoriasiform eruptions in patients with rheumatic diseases treated with TNF alpha inhibitors. The relationship of these psoriasiform eruptions to psoriasis and the pathogenesis of these eruptions has been unclear. We present a case series of patients with papular psoriasis. We propose that this kind of psoriasis

shares clinical features with psoriasiform eruptions associated with TNF- $\alpha$  inhibitors.

**Methods, Results:** This was an observational study. All patients were assessed at a Dermatology Connective Tissue Diseases clinic. We compared the clinical features of 3 patients with psoriasis and antecedent SLE, 3 patients with papular psoriasis and without a history of SLE, and 4 patients with psoriasis either induced or worsened by TNF inhibitor therapy. Clinical photographs and skin biopsies were obtained in all cases.

The patients with psoriasis and antecedent SLE, isolated papular psoriasis, and psoriasis associated with TNF inhibition had similar clinical features. Scattered acral erythematous papules with mild scale were prominent. All biopsies showed similar changes consistent with psoriasis and with features of spongiotic dermatitis. All 3 patients with predominantly papular psoriasis were ANA+.

**Conclusions:** Papular psoriasis maybe seen in patients with SLE, with patients that are ANA+, or in patients treated with TNF- $\alpha$  inhibitors. The clinical and pathologic similarities suggest a common pathophysiology and argue against a unique drug eruption mechanism in patients with TNF inhibitor induced psoriasiform eruption.

## Hemangioma incidence at the Children's Hospital of Eastern Ontario from 2002–2009

Genevieve Gavigan; Nordau Kanigsberg

University of Ottawa, Ottawa, ON

**Introduction:** Hemangioma of Infancy (HI) is a vascular tumour resulting from localized proliferation of angioblastic mesenchyme, and is the most common tumour of infancy. (Wolff and Johnson, 2009) Clinically, it appeared that the incidence of children with HI was increasing at the Children's Hospital of Eastern Ontario (CHEO) over the past several years. A retrospective chart review was conducted to investigate and quantify this observation with the hypothesis that the incidence of hemangiomas in children at CHEO has increased over the past 7 years.

**Methods:** Ethics Board approval was obtained and a retrospective chart review quantifying the incidence of hemangiomas in pediatric patients encountered at CHEO out-patient clinics was performed. The time period for this study was 2002-2009; specifically, CHEO charts from 2002, 2005 and 2009 were utilized to calculate the incidence of hemangiomas in those 3 years. Hemangioma severity was categorized into hemangiomas requiring treatment (more severe cases) and those not requiring treatment

(less severe cases), to determine if there has been a specific trend in either subgroup.

**Results:** Preliminary analysis of CHEO outpatient clinics indicated that patients with hemangiomas were encountered by several services, namely, dermatology, ENT, plastic surgery, ophthalmology, hematology, dentistry, and occupational therapy.

**Conclusions:** If data analysis reveals that the incidence of hemangiomas at CHEO has increased, hopefully other centers will evaluate their incidence of HI. If the increase is confirmed at other centers then an explanation should be investigated, possibly hormonal or related to supplements given during pregnancy. This may allow for a greater understanding of the pathophysiology of hemangiomas in children, and assist in primary prevention and management of this tumour.

**Reference:** K. Wolff and R.A. Johnson. (2009). Fitzpatrick's Color Atlas and Synopsis of Clinical Dermatology, 6th ed., McGraw-Hill Medical.

## Ustekinumab safety update: cumulative experience from longer term follow-up of patients treated in the ustekinumab psoriasis clinical development program

K Gordon<sup>1</sup> C Leonardi<sup>2</sup> Christopher E. Griffiths<sup>3</sup> P O. Szapary<sup>4</sup> N Yeilding<sup>4</sup> M C. Hsu<sup>4</sup> N Wasel<sup>5</sup> J C. Prinz<sup>6</sup> K Reich<sup>7</sup>

1. University of Chicago Pritzker School of Medicine/NorthShore University Health System, Chicago, IL, United States; 2. Department of Dermatology, St. Louis University, St. Louis, MO, United States; 3. University of Manchester, Manchester, United Kingdom; 4. Centocor Research & Development, Inc., Malvern, PA, United States; 5. Stratica Medical, Edmonton, AB; 6. University of Munich, Munich, Germany; 7. Dermatologikum Hamburg, Hamburg, Germany

**Objective:** To analyze the cumulative safety experience across psoriasis trials in patients treated with ustekinumab (UST), a human monoclonal antibody against interleukin 12/23p40.

**Methods and Results:** This analysis pooled safety data across Phase 2 and 3 psoriasis trials including 152wks(3yrs) from PHOENIX 1, 100wks(2yrs) from PHOENIX 2, and 64wks (1yr) from ACCEPT. UST 45mg and 90mg dosing were studied in each trial (Phase 2:1 injection or 4wkly injections; PHOENIX 1 and 2:injections at wk 0, 4, and q12wk thereafter. Placebo-treated patients crossed over to UST at wk20(Phase2) or wk12 (PHOENIX 1 and 2). In ACCEPT, patients received injections at wk 0, 4 and at variable intervals thereafter. All analyses are adjusted for follow up and expressed as rates per 100 patient-years(PY) of exposure.

This analysis included 3117 patients (4782 PY of follow-up), with 1247 patients treated  $\geq 2$  yrs (median follow-up, 1.7 yrs). Overall AE rates per 100PY were 287.75 and 280.29 for the UST45mg and UST90mg groups, respectively. Common reported AEs ( $\geq 5\%$ ) included nasopharyngitis, upper respiratory tract infection, arthralgia, sinusitis, headache, and back pain. The rates of serious AEs per 100PY were 6.78 and 8.24 for each group, respectively. Serious infection rates per 100PY in the UST45mg and UST90mg groups were 0.82 and 1.50, respectively; rates of infections requiring treatment were 34.9 and 34.7 per 100PY, respectively. The incidence of non-melanoma skin cancers (NMSC) per 100PY of follow-up in UST45mg and UST90mg groups were 0.64 and 0.77, respectively. Rates of non-cutaneous malignancies were 0.69 and 0.46 for the respective UST dose groups. Rates of major cardiovascular events (cardiovascular death, myocardial infarction, or stroke), per 100PY in the UST45mg and UST90mg groups were 0.41 and 0.35, respectively. Rates of serious infections, malignancies, and major cardiovascular events were stable over time and were consistent with rates previously described and with observations in the general and/or psoriasis population.

**Conclusions:** The safety profile of continued UST exposure in the most recent pooled analysis is favourable and is consistent with previous reports. Ongoing Phase 3 studies with a total of 5 yrs of follow-up will continue to define the safety profile of UST in psoriasis.

### Infection rates in ustekinumab-treated psoriasis patients: observations with up to 3 years of follow-up and comparisons to a large health care claims database

K Gordon<sup>1</sup> A Menter<sup>2</sup> P O. Szapary<sup>3</sup> N Yeilding<sup>3</sup> M C. Hsu<sup>3</sup> L Guenther<sup>4</sup> S Philipp<sup>5</sup> P Van de Kerkhov<sup>6</sup> R G. Langley<sup>7</sup>

1. University of Chicago Pritzker School of Medicine/NorthShore University Health System, Chicago, IL, United States; 2. Baylor Research Institute, Dallas, TX, United States; 3. Centocor Research & Development, Inc., Malvern, PA, United States; 4. The Guenther Dermatology Research Centre, London, ON; 5. Charité Universitätsmedizin, Berlin, Germany; 6. University Hospital Nijmegen, Nijmegen, Netherlands; 7. Dalhousie University, Halifax, NS

**Objective:** To evaluate infection rates observed in psoriasis trials with up to 3 yrs of treatment with ustekinumab (UST).

**Methods and Results:** Infections were evaluated in data pooled across UST psoriasis trials [Phase 2 trial (n=320), PHOENIX 1 (n=766), PHOENIX 2 (n=1230), and ACCEPT (n=903)]. Rates of serious infections (SI) were compared to expected rates based on psoriasis patients treated with systemic agents in the MarketScan Claims Database,

adjusted by age-sex distribution. 95% confidence intervals were calculated assuming number of events following Poisson distribution. 3117 patients (4782 patient-years of follow-up [PY]) were treated with UST; 1247 patients were treated for  $> 2$  yrs (1.7 median yrs of follow-up). At least one infection was reported in 71.7% and 61.9% in the UST45mg and UST90mg groups, respectively; the number of infections per 100-PY were 113.68 and 111.21, respectively. The rates of overall infections in UST-treated patients per 100-PY were 134.6, 91.06, and 77.04 in Yrs 1, 2 and 3, respectively. The number of infections per 100-PY requiring treatment was 34.9 and 34.7 for the UST45mg and UST90mg groups, respectively. 1.3% and 1.7% of pts had  $\geq 1$  SI, respectively; SI per 100-PY (95% CI) for the UST45mg and UST90mg group were 0.82 (0.49, 1.30) and 1.50 (1.07, 2.05), respectively. Based on the MarketScan Claims Database analysis, the expected rates (95% CI) of SI were 1.48 (1.01, 2.09) and 1.54 (1.10, 2.10) per 100-PY for the UST45mg and UST90mg groups, respectively. The rates of SI in UST-treated patients per 100-PY were 1.41, 1.00, and 0.78 in Yrs 1, 2 and 3, respectively. No specific patterns of infections emerged with the majority of SI caused by common pathogens. One potential opportunistic infection of disseminated, cutaneous herpes zoster was observed. No cases of TB, atypical mycobacterial disease, systemic fungal infections, or salmonellosis were observed.

**Conclusions:** Infection rates remained stable with up to 3 yrs of follow-up and did not increase with cumulative exposure. SI rates are comparable to the expected rates observed in the general psoriasis patient population treated with other systemic agents.

### Impact of ustekinumab on quality of life and sexual difficulties associated with psoriasis: results from phase 3 clinical trials

L Guenther<sup>1</sup> C Han<sup>2</sup> P O. Szapary<sup>3</sup> B Schenkel<sup>2</sup> Y Poulin<sup>4</sup> M Bourcier<sup>5</sup> J P. Ortonne<sup>6</sup> H L. Sofen<sup>7</sup>

1. The Guenther Dermatology Research Centre, London, ON; 2. Johnson & Johnson Pharmaceutical Services, LLC, Malvern, PA, United States; 3. Centocor Research & Development, Inc., Malvern, PA, United States; 4. Centre Dermatologique du Quebec Metropolitain, Quebec City, QC; 5. Dermatology Clinic, Moncton, NB; 6. Hoptial L'Archet 2, University of Nice, Nice, France; 7. Dermatology Associates, Los Angeles, CA, United States

**Objective:** To determine if sexual difficulties associated with psoriasis were associated with disease severity and if they improved as the skin improved during treatment with ustekinumab.

**Methods, Results:** In the PHOENIX I and II trials, patients with moderate to severe psoriasis (N=1996) were randomized to ustekinumab (45mg or 90mg, N=1334) at weeks 0, 4 and every 12 weeks thereafter; or placebo (N=662) at weeks 0 and 4 with cross-over to ustekinumab (45mg or 90mg) at week 12. Psoriasis severity was assessed using the Psoriasis Area and Severity Index (PASI), and quality of life with the Dermatology Life Quality Index (DLQI). Question # 9 in the DLQI was used to explore sexual difficulties. Impaired sexual function was defined as skin disease causing either 'very much' or 'a lot' of sexual difficulties. At baseline, the mean DLQI was 12.0, indicating a very large negative effect on patient life. Impaired sexual function was reported by 22.6 % (27.1% of females and 20.8% of males) and was significantly associated with psoriasis severity. At week 12, patients treated with ustekinumab had greater improvement in DLQI (-9.13 versus -0.53 with placebo,  $p < 0.001$ ) and impaired sexual function decreased from 22.4% to 2.7% compared to no change observed in the placebo group ( $p < 0.001$ ). Those patients who showed a greater improvement in PASI also experienced greater reduction of sexual difficulties. A similar pattern of improved sexual function was observed at weeks 24-28 in the placebo group who crossed-over to ustekinumab at week 12.

**Conclusions:** Impaired sexual function is a common complaint in patients with moderate to severe psoriasis. Treatment with ustekinumab was associated with a significant improvement in patient's sexual function and quality of life.

## Alitretinoin is effective in clearing severe chronic hand dermatitis

Lyn Guenther<sup>1</sup> Les Rosoph<sup>2</sup> Jerry Tan<sup>3</sup> Ron Vender<sup>4</sup> Juergen Maeres<sup>5</sup>

1. The Guenther Dermatology Research Centre, London, ON; 2. Probit Medical Research, North Bay Dermatology Centre, North Bay, ON; 3. Windsor Clinical Research Inc, Windsor, ON; 4. Dermatials Research, Hamilton, ON; 5. Basilea Pharmaceutica International Ltd, Basel, Switzerland

**Objectives:** To summarize the efficacy of oral alitretinoin (9-cis retinoic acid) in the treatment of severe chronic hand dermatitis (CHD) based on data from three clinical trials.

**Methods:** [Study A] A double-blind, randomized, placebo-controlled trial in 1032 patients who received alitretinoin 10 mg (n=418) or 30 mg (n=409), or placebo (n=205) once daily for up to 24 weeks. [Study B] An open-label, single fixed dose study in 249 patients who received oral alitretinoin 30 mg once daily for up to 24 weeks. [Study C] A double-blind, placebo-controlled, randomized study of 117 patients who responded to treatment in Study A and

who subsequently relapsed within 24 weeks. Patients were re-randomized to a second course of the same dose of alitretinoin or placebo.

**Results:** [A] Response ('clear' or 'almost clear' hands by Physician's Global Assessment) was achieved in up to 48% of patients treated with alitretinoin, compared with 17% for placebo ( $P < 0.001$ ), with up to 75% median reduction in disease signs and symptoms. Time to achieve response was significantly shorter with alitretinoin 30 mg compared with placebo (median time 85 days versus 141 days;  $p < 0.001$ ). Improvements were seen in all signs and symptoms of CHD. [B] 47% of patients achieved a response at the end of treatment. Median time to response was 87 days and there was an 82% median reduction in disease signs and symptoms. [C] Amongst patients who were previously successfully treated with alitretinoin, up to 80% responded to retreatment with the same dose of alitretinoin compared with 8-10% who received placebo.

**Conclusions:** Oral alitretinoin taken once daily is highly effective in treating severe CHD in patients unresponsive to potent topical corticosteroids, and produces improvements in all of the individual signs and symptoms of CHD. Patients who relapse after initial treatment can be effectively retreated with alitretinoin.

## Determination of genetic markers for responsiveness to alefacept (Amevive®)

W. P. Gulliver<sup>1,2</sup> K. A. Baker<sup>2</sup> L. Peddle<sup>2</sup> P. Rahman<sup>1</sup>

1. Faculty of Medicine, Memorial University of Newfoundland, St. John's, NL; 2. NewLab Life Sciences, Inc., St. John's, NL

**Introduction:** Biologics are becoming increasingly important for treating moderate-severe chronic plaque psoriasis. Unfortunately, none of the commercially-available biologics are 100% effective in all patients. The discovery of a genetic marker to predict response to biologics would be a significant step forward in the management of chronic plaque psoriasis with biologic therapy. Initial work at our centre suggested that HLA-Cw6 may predict response to a number of biologics including T-cell agents efalizumab and alefacept as well as the TNF inhibitor, infliximab. Further studies confirm that HLA-Cw6 can predict response in alefacept patients.

**Methods:** A chart review has been completed and has identified 45 patients who have been treated with alefacept. Responders were defined as patients who achieved a PASI-75 at any time during the first 16 weeks of therapy. Two strategies are being used to identify biomarkers using genomic DNA. The first employs the use of single

nucleotide polymorphism (SNP) analysis of multiple genes important in the psoriasis immunological pathway including HLA-Cw6, TNF-alpha, IL12/23, LFA3, LFA1, CD11a (total of 450 SNPs). The second data strategy involves genome wide association scans (GWAS) using the Affy 1.9 chip, which allows us to analyze 1.9 million genetic markers.

**Results:** Preliminary data does not support the initial observation that HLA-Cw6 may predict response to alefacept in psoriasis patients. Other biomarkers are being analyzed.

**Conclusion:** Genetic biomarkers are gaining exposure as an important diagnostic strategy to predict drug responsiveness and limit toxic side effects in many fields of medicine. HLA-Cw6 is not a marker that will predict response to alefacept in psoriasis. It is possible however that other genetic markers can be found to predict response to this and other biologics.

## Multi-generation linkage of psoriasis families in Newfoundland

W. P. Gulliver<sup>1,2</sup> K. A. Baker<sup>2</sup> L. Peddle<sup>2</sup> C. Street<sup>1</sup> P. Rahman<sup>1,2</sup>

1. Faculty of Medicine, Memorial University of Newfoundland, St. John's, NL; 2. NewLab Life Sciences, Inc., St. John's, NL

**Introduction:** The Newfoundland and Labrador founder population is invaluable for discovering the underlying genetic cause of human diseases. Several inflammatory diseases, including psoriasis are more common in the province than other regions of the country. Although many common genes associated with psoriasis have already been uncovered, it is believed that many rare genes have yet to be discovered. As a first step, a linkage of multi-generational families with psoriasis is being performed.

**Methods:** Family information and DNA was collected for 2100+ subjects in a study which investigated the genetics of psoriasis within the province and uncovered HLA-Cw6 and TNF $\alpha$  as susceptibility genes. At that time individual family pedigrees were produced by hand. Since then, the Population Therapeutics Research Group (PTRG) has been created within the Faculty of Medicine at Memorial University. The PTRG can link family information to the Newfoundland and Labrador Genealogy Database to produce large pedigrees to help determine the relatedness of subjects. Ten large families with 6 or more psoriatic family members have been identified for linkage.

**Results:** The 10 identified families have a linkage of disequilibrium (LOD) score  $\geq 2.3$ , with 2 families having a LOD  $> 3.0$  ideal for performing a genome wide association scan (GWAS). The mean ( $\pm$  SD) of affected family members is 7

( $\pm 1$ ). A GWAS performed on these patients may uncover novel genes for susceptibility to psoriasis and related comorbidities.

**Conclusions:** Pedigree analyses in the Newfoundland founder population have proven invaluable for the planning of studies to determine the genetic cause of diseases. This is an important first step in the planning of a GWAS to uncover novel, less frequent genes in psoriasis and its comorbidities.

## Significant and sustained improvement of severe eczema with ISA247

W. P. Gulliver<sup>1,2</sup> T. Curtis<sup>2</sup> K. A. Baker<sup>2</sup>

1. Faculty of Medicine, Memorial University of Newfoundland, St. John's, NL; 2. NewLab Life Sciences, Inc., St. John's, NL

**Introduction:** Atopic Dermatitis is a condition that occurs in 1-2% of the population. The majority of patients will go in to spontaneous remission before the age of 15. When adults are affected by Atopic Dermatitis limited treatment options are available to physicians. We present the first known case of Atopic Dermatitis in an adult patient treated with the calcineurin inhibitor ISA247 (Voclosporin).

**Methods:** A 57 year-old male with a better than 20 year history of severe atopic eczema was initially with 0.4mg of ISA 247/kg daily then increased to 0.6mg/kg. The patient had been treated in the past with intermittent courses of systemic steroids, phototherapy and topical steroids before starting cyclosporine, however after 2 years of therapy he developed hypertension and renal dysfunction.

**Results:** The patient had atopic eczema involving 18% BSA and an eczema area and severity index (EASI) of 15 at baseline. By 6 weeks of treatment, the EASI score was decreased to 5.4 (BSA = 4.5%) and the dose of ISA247 reduced to 50 mg/day. By week 14, the eczema was almost cleared (EASI = 0.7; BSA = 2%). Patient has remained on ISA247 for 48 weeks. Of note is that his renal function has returned to normal and remained stable for the past 6 months and his blood pressure has remained controlled with his present anti-hypertensive therapy.

**Conclusions:** ISA247 (Voclosporin) is a calcineurin inhibitor with greater potency, but less potential for renal and hypertension-related side effects, has been extremely effective and well tolerated in patient with severe atopic eczema. These initial findings suggest that a favourable clinical outcome combined with excellent safety profile makes ISA247 potentially an excellent therapeutic candidate for the treatment of severe atopic eczema.

## Hidradenitis suppurativa disease amelioration with ustekinumab therapy

W. P. Gulliver<sup>1,2</sup> T. Curtis<sup>2</sup> K. Hepditch<sup>2</sup> K. A. Baker<sup>2</sup>

1. Faculty of Medicine, Memorial University of Newfoundland, St. John's, NL; 2. NewLab Life Sciences, Inc., St. John's, NL

**Introduction:** Hidradenitis suppurativa (HS) has a clear unmet medical need as no effective therapeutic agent currently exists for its treatment. Previous studies have demonstrated some benefits with anti-tumor necrosis factor inhibitors, however these effects are short-lived in some patients. We have recently begun an open-label study on the safety and efficacy of Ustekinumab. To our knowledge these are the first patients with HS ever treated with Ustekinumab.

**Methods:** Subjects receive a 45 mg (<100kg) or 90 mg (<100kg) injection of Ustekinumab at baseline, at 4 weeks and then every 12 weeks thereafter. Follow-up visits occur every 2 weeks for the first 2 months and then every 4 weeks thereafter. Outcomes measures include the Dermatology Life Quality Index (DLQI), Hurley disease staging, physician's global assessment and the visual analog pain scale.

**Results:** Patient 1. A 31 year-old female with moderate HS (Hurley Stage II) presented with several abscesses with tracts and scarring in 7 different regions examined at baseline. After 2 months of treatment, abscesses remain in only 2 affected areas. Patient 2. A 32 year-old male with severe HS (Hurley stage III) presented with multiple tracts and abscesses in 5 areas. Upon 1 month follow-up, the patient is very satisfied with the results and his disease is significantly improved (Hurley Stage II). DLQI scores do not correlate with the significant improvements in disease severity or the self-reported satisfaction of the patients.

**Conclusions:** Significant improvement in HS severity is seen within 2 months of treatment with Ustekinumab. Ustekinumab has been well tolerated by both patients.

## Comparison of visual assessments versus planimetry assessments in a large-scale clinical trial of onychomycosis

Aditya K. Gupta; Elizabeth Cooper

University of Toronto and Mediprobe Research, London, ON

**Introduction:** Computerized nail planimetry has been recommended as an objective means of accurately assessing affected nail areas, as compared to the standard visual estimation method. However, no comparison of visual assessment with planimetry is currently presented in the literature on onychomycosis to support this recommendation.

To investigate this issue, visual assessments from an 84-week large-scale trial of subungual dermatophyte onychomycosis treatment cohort were compared with planimetry measurements of nails made from digital photos of the nails taken through the course of the trial.

**Methods/Results:** Visually-assessed percent affected area of the target toenail was compared with percent affected areas calculated by planimetry from digital photographs. Differences in assessment of affected area by visual and planimetry means were compared by linear regression, and by considering mean difference in area between assessments at baseline, week 48 and week 84 as per the analysis method of Bland and Altman, including determination of the limits of agreement. Effective cure rates were calculated using alternately visual and planimetry areas for weeks 48 and 84, and compared using the Chi-square test. Comparison showed good statistical agreement of visual and planimetry measures based on correlation coefficient, but clinically, cure rates were overestimated by 9% and 11% at weeks 84 and 48 respectively using visual methods. Visual assessments at week 84 were within 10% of planimetry measurements in 91.7% of comparisons, and within 5% of planimetry measures in 74.1% of comparisons. Rates of agreement were lower at other visits considered in analysis.

**Discussion and Conclusion:** The results suggest that objective measures such as planimetry are required to reduce the impact of visual assessment errors, and techniques to increase the standardization of onychomycosis assessment during trials are warranted.

## A new water soluble formulation of 8% ciclopirox (P-3051): a step forward in the treatment of onychomycosis

Aditya K. Gupta<sup>1</sup> William C. Brintnell<sup>2</sup> Elizabeth Cooper<sup>2</sup> Robert Baran<sup>3</sup>

1. University of Toronto and Mediprobe Research, London, ON; 2. Mediprobe Research, London, ON; 3. Nail Disease Center, Cannes, France

**Introduction:** Onychomycosis is a difficult to treat condition, and demonstration of superiority vs. placebo is a prerequisite in the development of a medicated nail lacquer. First generation water insoluble nail lacquers were based on ciclopirox or amorolfine. Ciclopirox 8% was not significantly superior to placebo in "complete cure" in one of the two pivotal studies; no superiority vs. placebo has ever been published for amorolfine 5%.

**Aim:** A European, pivotal, double blind, placebo-controlled study investigated the efficacy of a new water-soluble formulation (WS) of ciclopirox 8% (P-3051).

**Methods:** Patients with onychomycosis of the big toenail randomly applied either WS ciclopirox 8% (P-3051) (n=175), or P-3051 vehicle (Placebo) (n=94) for 48 weeks, followed by 3 months observations. Primary endpoint was complete cure (negative mycology and 100% clear nail) in the ITT population (including 20% patients with severe onychomycosis) with LOCF at week 48, confirmed at week 52. Secondary analyses included: 1) patients with <65% nail involvement and only dermatophytes infection, at baseline and 2) patients with 25% - 65% nail involvement and only dermatophytes infection, at baseline. Superiority was tested by Fisher's Exact Test.

**Results:** In ITT (mild-to-severe), cure rates were: P-3051 (5.7%), Placebo (0%),  $p < 0.05$ , at the primary endpoint: 11.4% vs. 1.1%, at 60wk ( $p < 0.005$ ). In secondary 1) (mild-to-moderate) 7.1% vs. 0%,  $p < 0.05$  at 48wk; 12.6% vs. 1.4% at 60wk ( $p < 0.01$ ). In secondary 2) (moderate) 7.6% vs. 0% ( $p < 0.05$ ) at 48 wk, 10.9% vs. 0% ( $p < 0.005$ ) at 60wk.

**Conclusions:** P-3051 (WS 8% ciclopirox), a second generation medicated nail lacquer, is the first antimycotic topical product superior to placebo, and represents a step forward in the treatment of onychomycosis.

## Stevens-Johnson syndrome without skin lesions (Fuchs syndrome) — a clue to mycoplasma etiology

Richard M. Haber

University of Calgary, Calgary, AB

A 26 year old man presented with fever and cough. Two weeks later he developed a marked oral mucositis with difficulty swallowing. He went on to develop a severe conjunctivitis and urethral soreness and dysuria. He was admitted to hospital because of the marked oral discomfort and for further investigations. During his admission he had no skin lesions. Differential diagnosis was confusing because of the lack of cutaneous lesions. The diagnoses considered included atypical Stevens-Johnson syndrome as well as Reiter's disease. A oral biopsy revealed confluent epithelial necrosis with a mild superficial lymphocytic infiltrate felt to be most compatible with Stevens-Johnson or TEN. Chest X-ray showed no pneumonia. Cold agglutinins were negative. However, an IgM EIA was positive for *Mycoplasma pneumoniae* and he was treated with oral Clarithromycin 250 mg BID and recovered completely with no permanent sequelae.

There are a few reports of Stevens-Johnson syndrome without skin lesions caused by *Mycoplasma pneumoniae* infection. In Germany this is referred to as Fuchs syndrome. Dermatologists should be aware that Stevens-Johnson syndrome can occur with mucosal involvement in the absence of skin lesions and that *Mycoplasma pneumoniae* etiology should be strongly considered in the differential diagnosis of these cases.

## Tinea corporis gladiatorum presenting as a Majocchi granuloma

Richard M. Haber<sup>1</sup> Anil Kurian<sup>2</sup>

1. University of Calgary, Calgary, AB; 2. McMaster University, Hamilton, ON

A 20 year old man who was a high school and university wrestler for the past 6 years, presented with a 4 year history of a pruritic large erythematous plaque with follicular papules on his right forearm. This clinically had the typical clinical appearance of a Majocchi granuloma. He had previously been treated with potent topical corticosteroids, antibiotic creams and terbinafine cream with no improvement. He also had an erythematous scaly patch with overlying alopecia in his right anterior scalp.

KOH and fungal culture from the right forearm was negative. A skin biopsy from the right forearm showed a deep folliculitis compatible with a Majocchi granuloma but fungal stains were negative. The diagnosis was finally established as a fungal culture from his scalp grew *Trichophyton tonsurans*. All topical therapy was stopped and he was treated with oral Terbinafine 250 mg daily for 1 month with complete clearing of his forearm and scalp lesions.

I am reporting the first case of tinea corporis gladiatorum presenting as a Majocchi granuloma. A literature review did not yield any other cases of Majocchi granuloma in patients with tinea gladiatorum.

The purpose of this report is to inform dermatologists that tinea corporis gladiatorum can present as a Majocchi granuloma and needs to be considered in the differential diagnosis of persistent skin lesions in wrestlers.

## Hyperferritinemia — a potentially useful marker in a number of critical dermatological conditions associated with macrophage activation

Tatyana B. Hamilton<sup>1</sup> Cristián Vera-Kellet<sup>2</sup> Jan P. Dutz<sup>1</sup>

1. Department of Dermatology and Skin Science, Vancouver, BC;  
2. Department of Dermatology, Pontificia Universidad Católica de Chile, Santiago, Chile

**Introduction and Objective:** Macrophage activation syndrome (MAS) is a potentially life-threatening condition caused by excessive activation and proliferation of well-differentiated macrophages. Sustained macrophage activation results in tissue infiltration and the production of high levels of TNF- $\alpha$ , IL-1 and IL-6 which play a major role in tissue damage leading to multiorgan dysfunction. This condition occurs in a heterogeneous group of diseases including neoplastic, hematological and rheumatic disorders. Clinically, it is characterized by high fevers, pancytopenia, liver insufficiency, consumptive coagulopathy and neurologic symptoms. Active hemophagocytosis by normal appearing macrophages is the pathognomonic feature of MAS. While well described in rheumatological literature, this phenomenon is relatively unknown in dermatological conditions. Here we describe a series of cases of cutaneous disorders associated with MAS. These include panniculitis-like T-cell lymphoma, adult-onset Still's disease (AOSD) and Kikuchi-Fujimoto syndrome. Clinical features and cutaneous manifestations of each of these conditions are reviewed. Hyperferritinemia is an important laboratory hallmark of MAS that has received little attention in the dermatological literature. We propose that elevated ferritin levels can serve as a clue to macrophage activation, aiding in diagnosis and follow-up.

**Methods and Results:** in this retrospective case series we present illustrative cases of three distinct cutaneous diseases: panniculitis-like T-cell lymphoma, AOST and Kikuchi-Fujimoto syndrome. We correlated the disease activity at diagnosis and throughout the course of treatment with serum ferritin levels and found that ferritin was dramatically elevated, often to over 10,000 ng/ml (normal 10-150 ng/ml) during disease flare. Furthermore, a good correlation between the ferritin level and response to therapy was found, with a rapid decrease in ferritin associated with a favorable course.

**Conclusions:** Hyperferritinemia may serve as a sensitive and specific laboratory marker of a number of dermatoses associated with macrophage activation and MAS and may be a useful indicator of disease activity, response to therapy and prognosis.

## Topical sodium thiosulfate: an effective treatment for chronic leg ulcers complicated by dystrophic calcification

Christina Han; Brian Kunimoto

Department of Dermatology and Skin Science, University of British Columbia, Vancouver, BC

**Introduction:** Dystrophic calcification is a rare complication of leg ulcers, which can lead to significant patient morbidity, pain, and ultimately, poor wound healing. Spontaneous resolution is rare and multiple therapies are usually attempted with minimal efficacy.

**Methods:** We describe a case of an 83 year-old female with two chronic non-healing venous leg ulcers complicated by dystrophic calcification with improved wound healing treated with topical sodium thiosulfate 10% over a five-month period. Dermatologic exam revealed two large ulcers with poor granulation tissue, significant biofilm and calcium deposits within the base. Radiographic studies revealed prominent subcutaneous calcification. Patient consent was obtained to publish clinical photographs for this case report.

Initial management included wound debridement, Mepilex™ absorbent dressings, and Duke boot compression therapy with minimal improvement. A literature review revealed potential clinical efficacy with topical sodium thiosulfate in a published case report of leg ulcers with dystrophic calcification. We, therefore, initiated biweekly topical sodium thiosulfate 10% solution, 10-20 drops at the base of the ulcer and dressed with a moisture-retention dressing. Concurrent therapy with Mepilex™ foam and Duke boot compression resulted in significant clinical improvement over a five-month period. Topical sodium thiosulfate was well-tolerated with no adverse effects reported by the patient.

**Conclusion:** Chronic wounds complicated by dystrophic calcification are rare and are potentially recalcitrant to conventional therapies resulting in significant patient morbidity. Topical sodium thiosulfate led to calcium dissolution, resulting in improved wound healing in our patient with no reported adverse effects. Topical use of sodium thiosulfate for the treatment of dystrophic calcification in wounds represents a treatment modality that warrants further study.

## Congenital hemangioma: RICH or NICH?

Nicole Hawkins; Peter R. Hull

University of Saskatchewan, Saskatoon, SK

**Introduction:** Congenital hemangioma are vascular tumors present at birth and are distinct from infantile hemangiomas which generally show continued growth after birth. In recent years, there has been a distinction made between those congenital hemangiomas that involute early in life and those that continue grow with the child; rapidly-involuting congenital hemangioma (RICH) and non-involuting congenital hemangioma (NICH), respectively.

**Methods:** A neonate was seen soon after her birth. She was otherwise healthy and had a normal prenatal history. On examination there was a raised, dome-shaped, violaceous tumor approximately 4cm in diameter, located on the inner aspect of her right forearm. The tumor had central telangiectasia and was surrounded by a halo of pallor.

An ultrasound investigation was performed.

**Results:** Ultrasound of the tumor showed a high-flow lesion extending into the subcutaneous fat. There were no abnormalities of the underlying bone.

At 4 months the lesion appeared unchanged but it felt somewhat softer. There have been no episodes of bleeding.

**Conclusion:** Both RICH and NICH share clinical features and it is the natural evolution that serves to distinguish the two. Most cases of RICH have resolved by 1 year. The diagnosis is generally made on the basis of the clinical features which include a solitary, fully formed tumour present at birth. The presence of telangiectases and a surrounding pale halo are characteristic. They tend to occur on the head or on limbs close to joints. There no vascular pulse. Ultrasound is useful in distinguishing these lesions from other congenital tumours in showing a high vascular flow.

## Educational needs assessment in psoriasis: perspective from dermatologists, nurses, and patients

Sean M. Hayes<sup>1</sup> David Gratton<sup>2,3</sup>

1. AXDEV Group Inc., Brossard, QC; 2. McGill University, Montreal, QC; 3. Montreal General Hospital, Montreal, QC

**Introduction:** The purpose of this study was 1) to determine clinical care gaps and educational needs of Canadian dermatologists and nurses specialized in dermatology and 2) to assess the experience of patients diagnosed with/ receiving care for psoriasis to provide a broader perspective of healthcare professionals' needs in this therapeutic area.

**Methods and Results:** An IRB-reviewed mixed-method approach was employed. In Phase one (qualitative exploratory data collection), one discussion group with dermatologists (n=6), five telephone interviews with nurses specialized in dermatology, and seven telephone interviews with patients diagnosed with psoriasis were conducted. In Phase two (quantitative validation data collection), 50 dermatologists and 14 nurses specialized in dermatology completed an online survey to validate the qualitative findings. The total sample for this study was 82 participants. Purposive sampling was used based on demographic criteria, level of specialization, and practice profile.

Findings revealed suboptimal collaboration and lack of clarity on the roles and responsibilities of primary care physicians, dermatologists and nurses caring for patients with psoriasis. Dermatologists also reported lacking knowledge of how and when to use biologic therapy and indicated concerns of potential negative long-term effects. Furthermore, dermatologists and nurses reported being challenged to objectively monitor response to therapy. They are sceptical about and lack training in use of existing monitoring tools. Dermatologists and nurses also indicated difficulty in dealing with patients' beliefs, fears, and unrealistic goals, contributing to inconsistent and incomplete patient education and emotional support. Finally, results showed a public stigma of psoriasis because of the belief that psoriasis is contagious, unimportant, and non-life threatening.

**Conclusion:** Identification of challenges faced by professionals providing care for patients with psoriasis revealed perceived as well as unperceived educational needs. Those findings are instrumental in informing the design of targeted educational initiatives to address healthcare professionals' knowledge, confidence, skill, and performance gaps.

Funded by an unrestricted educational research grant from Abbott Laboratories Limited.

## Review of periodic fever syndromes and a case report of NOMID

Morvarid Hessami

University of Toronto, North York, ON

**Back ground and Objectives:** Neonatal onset multi-system inflammatory disease (NOMID) or chronics infantile neurologic cutaneous articular syndrome (CINCS) is a rare inflammatory disorder characterized by a neonatal onset, recurrent fever and inflammation, cutaneous and CNS involvement.

It is one of the six hereditary periodic fever syndromes (HPFSs). They are all characterized by short and recurrent attacks of fever and severe localized inflammation that occur periodically or irregularly and are not explained by common infections of childhood.

**Case:** A ten month old female was seen at Sick Kids Hospital with history of periodic fever for 8 months, skin rash (urticaria and maculopapular eruption), FTT, arthralgia and slow development.

Further studies confirmed diagnosis of neonatal onset multisystem inflammatory disease (NOMID). Early diagnosis may prevent neurological sequel and systemic amyloidosis as there is an effective treatment available (Anakinra) but most of the time the diagnosis is delayed because of rarity of the disease.

### **An unusual erythema multiforme-like reaction induced by radiation therapy**

**Caroline E. Heughan; Harvey Finkelstein; Libini Eapen**

Department of Radiation Oncology, The Ottawa Hospital, Ottawa, ON

Erythema multiforme is an acute hypersensitivity skin reaction that is rarely precipitated by radiation therapy. In most patients, the eruption generalizes and becomes more severe with successive radiation fractions. We present a patient who developed a biopsy-proven erythema multiforme-like eruption while undergoing external beam radiation for prostate carcinoma. His presentation was unique as the eruption remained confined to the radiation fields and did not generalize, but rather, lessened over the course of radiation therapy.

The patient was a 55-year-old man undergoing external beam radiation treatment for low risk adenocarcinoma of the prostate. He presented with a localized skin eruption confined to the radiation fields that began after his 6th fraction. After 10 radiation treatments, the patient had developed well-demarcated confluent dermal urticoid plaques on the groins and buttocks with discrete urticoid lesions on the adjacent abdomen and buttocks. Skin biopsy showed subtle vacuolar interface dermatitis with a mild superficial perivascular lymphocytic infiltrate with scattered necrotic keratinocytes, consistent with erythema multiforme. Over the course of radiation treatments, the eruption remained confined to the radiation fields and gradually diminished. By the completion of 37 treatments, the lesions had entirely resolved.

Erythema multiforme induced by radiation therapy was first reported in the 1930s but there are few reported cases in the current literature. The majority of these reports

describe targetoid erythema multiforme-like lesions that appear within the radiation field and then generalize or evolve to a Stevens Johnson-like syndrome. This phenomenon may be an immune-mediated hypersensitivity reaction to toxic cell breakdown products created during radiotherapy. This case is unique from previous reports as the eruption remained limited to the radiation fields and improved to resolution by the end of the treatment dose.

### **Familial absence of fingerprints with congenital transient bullae—a candidate gene approach to finding the gene**

**Peter R. Hull<sup>1</sup> Jessica M. Lichtenwald<sup>1</sup>  
Duane J. Lichtenwald<sup>1</sup> Jingxia Wang<sup>2</sup>**

1. University of Saskatchewan, Saskatoon, SK; 2. Ningxia Medical University, Yinchuan, China

**Introduction:** While millions of individuals have had their fingerprints taken, it is extremely rare for fingerprints to be absent. This has been observed mostly in ectodermal dysplasia and is generally associated with other obvious features. A lack of fingerprints can cause obstacles when dealing with the authorities.

A small number of families have been described with isolated lack of fingerprint pattern inherited in an autosomal dominant manner. In some families, transient skin blistering was noted at birth. So far there have been no reports identifying the gene responsible for this condition. Naegeli-Franceschetti-Jadassohn (NFJS) syndrome is an autosomal dominant ectodermal dysplasia that clinically shows a complete absence of fingerprints and is associated with mutations in Keratin 14 (KRT 14). In contrast to KRT 14 mutations associated with epidermolysis bullosa simplex, which affect the central alpha-helical rod domain, the mutation in NFJS are found in the region of the gene encoding the nonhelical head. An extended Saskatchewan family has recently been identified showing lack of fingerprints and inherited in an autosomal dominant pattern. Other features in this family include congenital bullae, congenital milia, and normal palmar creases. The presence of congenital blistering and lack of fingerprints suggested a possible KRT 14 mutation as a candidate gene, explaining the features seen in our family.

**Methods:** Saliva samples from our family were collected (n = 14) and DNA isolated. KRT 14 and KRT 15 were amplified by PCR and fully sequenced.

**Results:** DNA was successfully isolated from all the specimens. In addition, PCR amplifications were equally successful and the entire KRT 14 and KRT 15 genes were

sequenced for all family members. No significant mutations were found in the affected individuals.

**Conclusion:** The a priori candidate gene in this study was KRT 14 and this study was extended to KRT 15 when no mutations were detected. KRT 15, an adjacent gene with no clinical phenotype, was similarly found to be normal. A formal genetic linkage study is now being undertaken.

Study was funded by the CDF.

## The electronic version of the Psoriatic Arthritis Screening Questionnaire (EPASQ) is an effective tool in detecting patients with psoriatic arthritis

Majed Khraishi<sup>1</sup> Ian Landells<sup>1</sup> Jonathan Mong<sup>2</sup>

1. Nexus Clinical Research, St. John's, NL; 2. Memorial University of Newfoundland, St. John's, NL

PsA is a serious disease that cause significant joint damage, disability and co-morbidities. Early PsA detection and effective treatment may reduce these serious problems. We developed the Psoriatic Arthritis Screening Questionnaire (PASQ) as a tool for reliable diagnosis of PsA.

**Objectives:** To examine the sensitivity and specificity of an electronic version of the PASQ and validate it against the original paper version.

**Methods:** The electronic version of the PASQ (EPASQ) was developed using Adobe Creative Suite 4 software, and was based on the previous paper version of the PASQ. The EPASQ was programmed to provide a maximum of 15 points. The PASQ contained 10 differently weighted questions and a diagram where patients marked where they had or have had pain and or swelling. The same questions were included in the EPASQ in addition to a diagram with 68 joints. The diagram and the questionnaire are electronically marked similar to the original version. Validation was conducted from 42 patients with PsA. Questionnaires from 12 psoriasis patients without PsA were used as a control. Comparison of scores obtained from the manual and the electronic versions were conducted. A receiver operating curve (ROC) was determined for both (the paper and the electronic version).

**Results:** The original PASQ data was collected from 87 patients (58 with PsA and 29 with psoriasis and no arthritis). Analysis of the PASQ score yielded an optimal cut-off score of 9, with 86.27% sensitivity and 88.89% specificity.

The EPASQ Data was collected prospectively from 42 early PsA patients and 12 psoriasis patients without PsA. All but one of the PsA patients scored 8 or more in the paper PASQ.

The ROC Curve of the entire group yielded an optimal 97.62% sensitivity and 75.00% specificity for a cut-off score of 7. A cut-off point of 8 yielded a sensitivity of 88.10% while still maintaining a specificity of 75.00%.

**Conclusion:** The electronic version of the PASQ is a simple self-administered and scored program with a high sensitivity and specificity.

## The patterns of patient reported quality of life (QoL) questionnaires in an early psoriatic arthritis (PsA) cohort

Majed Khraishi<sup>2,1</sup> Jennifer Hulburt<sup>2,1</sup> Ian D. Landells<sup>1</sup>

1. Memorial University of Newfoundland, St. John's, NL; 2. Nexus Clinical Research, St. John's, NL

**Background:** PsA affects 10-35% of patients with psoriasis (PSO). The joint and skin manifestations of PsA can have a profound impact on patient function and QoL. A standard QoL assessment tool could help define disease severity. The SF36 (Short Form with 36 questions) and the Dermatology Life Quality Index (DLQI) have been widely used. However the impact of the skin disease in PsA and the joint disease in PSO are rarely taken into consideration when assessing QoL, particularly in early stages of PsA. We attempt to illustrate the impact of early stages PsA on QoL using the DLQI and SF-36 questionnaires.

**Objectives:** To examine the impact of early stages of PsA on the QoL and the associations between QoL (SF 36, DLQI) and skin and joint disease characteristics in a cohort of early PsA patients.

**Methods:** A prospective cohort of patients with early PsA meeting the CASPAR criteria (less than two years symptoms duration) was followed in a rheumatology practice. Epidemiologic, clinical and serological data were collected at baseline and at six month intervals. Patient reported outcomes including the HAQ, SF-36 and DLQI were obtained.

**Results:** At the time of this report 48 patients with PsA who met the CASPAR criteria were included. The mean DLQI was 4.8 (SD=6.09). The mean HAQ was 0.6 (SD=0.51). Correlations were found between the DLQI and psoriasis severity. Inverse correlation was found between the DLQI and SF 36 scores ( $r=-.474$ ,  $p < .01$ ), as well as the DLQI and patient age ( $r=-.29$ ,  $p < .05$ ). In regression analyses severity of psoriasis and the mental domain measure of the SF 36 explained 50% of the variance in the DLQI scores.

**Conclusions:** PsA has significant impact on the QoL of patients, even in early stages of PsA. Rarely reported are the effects of PSO on QoL in these patients. Our data suggest

that skin involvement seems to have significant impact in about one third of patients. Such effect on QoL should be taken in consideration when treatment decisions are made.

## The moon children of Kuna Yala-albinism in San Blas Islands of Panama: review, directions in research and aid

Irèn Kossintseva; Jan P. Dutz

University of British Columbia, Vancouver, BC

**Introduction:** The Kuna Indians are a small indigenous population in Central America, which independently own the province of Kuna Yala that spans some 400 miniature San Blas Islands off the east Panama coast. Their island population of about 30,000 resides in compact quarters, inhabiting only a few of those islands because they value family and tightly-knit community over independent personal spread. The Kuna Indians have the world's highest rate of oculocutaneous albinism (specifically OCA2), with current estimated frequency of 1:160. The albinos, called the Moon Children, play a central role in Kuna mythology, are revered to have special powers and subsequently are often rendered prime positions in the community such as doctors, shamans and leaders.

While an appreciable anthropological data has been gathered about the Kuna albinism, there has been surprisingly minimal medical research. This is likely in part due to relative impermeability to Westernization by this proud and hard-working community.

**Methods and Results:** The location of San Blas Islands archipelago in the equatorial belt predisposes the Kuna albinos to the morbidity and mortality associated with solar insult. Here we present a review of physical anthropology and medical data on the Kuna albinism to date, along with personal experience and photographic record of these Moon Children afflicted from a very young age with solar elastosis, wrinkling on the dorsal hands, actinic cheilitis, actinic keratoses and morphology consistent with squamous cell carcinoma.

**Conclusions:** The unique features of oculocutaneous albinism have resulted in a remarkable societal response amongst the Kuna culture despite significant cutaneous morbidity of this condition.

## Psoriasis assessment and biological use practices among Canadian dermatologists

John N. Kraft<sup>1</sup> Carrie B. Lynde<sup>1</sup> Lyn Guenther<sup>2</sup> Charles W. Lynde<sup>1</sup>

1. Division of Dermatology, University of Toronto, Toronto, ON;

2. Division of Dermatology, University of Western Ontario, London, ON

The use of biologicals for psoriasis is becoming more commonplace in Canada. Unfortunately, there are little comprehensive data in Canada about how dermatologists use biologicals and how they establish the severity of psoriasis. Tools exist such as the Psoriasis Area and Severity Index (PASI) that have been validated in a number of research trials to quantify psoriasis improvement with certain interventions. This tool is used in research trials and is being used more often in clinical practice, especially for reimbursement purposes for biologicals.

The purpose of our project was to assess the opinion and use of biological therapeutic agents among Canadian dermatologists. Our survey sought to determine the level of awareness and facility with the use of PASI and other psoriasis assessment tools, in addition to the level of their use in general dermatology practice.

Ethics approval was obtained from the University of Toronto Research Ethics Board. We sent out a questionnaire by email to all Canadian dermatologists. This was the first national survey to determine the opinions of Canadian dermatologists on these important issues.

Results and descriptive trends will be presented.

## Epidemiology of dermatofibrosarcoma protuberans from 1988–2007 in Alberta, Canada

Paul F. Kuzel<sup>1</sup> Andrei Metelitsa<sup>1</sup> Douglas Dover<sup>2</sup> Muhammad N. Mahmood<sup>3</sup> Thomas G. Salopek<sup>1</sup>

1. Department of Dermatology, Faculty of Medicine, University of Alberta, Edmonton, AB; 2. Alberta Health and Wellness, Edmonton, AB; 3. Department of Laboratory Medicine and Pathology, Faculty of Medicine, University of Alberta, Edmonton, AB

**Background:** Dermatofibrosarcoma Protuberans is a rare, locally aggressive, frequently recurrent cutaneous sarcoma originating in the deep dermis of the skin. The literature reports the incidence of DFSP as being in the range of 1.0 - 5.0 per million. Because it is so uncommon, there is a shortage of large-scale, population-based epidemiological studies. This study examines the epidemiology of DFSP in Western Canada.

**Methods and Results:** We have conducted a population-based retrospective study of all incident cases of DFSP in Alberta, Canada spanning a 20-year period, from 1988 to 2007. All data was obtained from the Alberta Cancer Registry. There were 241 recorded cases of DFSP during the study period. DFSP is primarily a malignancy that affects young to middle-aged adults, with the median age of diagnosis being 39 years, and 88% of the cases falling within the ages of 15-64. Within this age range, the average DFSP incidence held relatively steady over the duration of our study, at approximately 5 cases per million. There was no significant sex predilection, with 52% of cases occurring in women and 48% in men. The anatomical distribution observed was as follows: 51% occurred on the trunk, 24% on the upper limbs, 13% on the lower limbs and 10% on the scalp and neck area.

**Conclusions:** Due to the rarity of DFSP occurrences, there is a shortage of large-scale population-based studies examining its epidemiology. As a result, there is disagreement in the literature on several key epidemiological parameters, namely sex distribution and exact incidence trends. Our research of DFSP cases in Alberta supports the conclusion that the malignancy affects men and women equally, primarily affects young to middle-aged adults, and that the incidence has held steady at approximately 5 cases per million over the past two decades.

## Characteristics and co-morbidities of a cohort of psoriasis patients

Ian D. Landells<sup>1</sup> Kassem Abouchehade<sup>2,1</sup> Majed Khraishi<sup>2,1</sup>

1. Memorial University of Newfoundland, St. John's, NL; 2. Nexus Clinical Research, St. John's, NL

**Introduction:** Psoriasis (PsO) is a chronic inflammatory skin disease that is associated with serious comorbidities such as psoriatic arthritis (PsA) and cardiovascular disorders. It is estimated to affect about one million people in Canada. The inflammatory nature of PSO, severity and its duration contribute to the acceleration of development of associated comorbidities. This necessitates the proper treatment and control of PSO in vulnerable patients and therefore, effective screening tools and management were considered implemented on our cohort of patients.

**Methods:** A cohort of psoriasis patients was screened for PsA in a dermatology practice. Patients were provided with Psoriatic Arthritis Screening Questionnaire (PASQ) containing ten questions and a diagram for patients to label joint swelling and pain. Scores were obtained to a maximum score of 15. Type of PsO and Psoriasis Area Severity Index (PASI) was determined. Patients were surveyed

for accompanying comorbidities and family history of PsO. Treatment management was documented for every patient. Data analyzed using SPSS statistical software.

**Results:** Mean age of the Cohort was 45.82 (13.4) (SD). Age range was 20-74 years old. 53% had a family history of PsO. Age of Onset ranged from 8-62 years old. Mean age of onset was 34.30 (14.8). 67% had onset of PsO after 25 years of age. Mean PASI score was 5.16 (6.2). 12.5% of patients have PsA with a mean age of onset of 52 (8.2) and PsO disease onset of 42.4 (12.8) years. Nail disease was noticed in about 15% of patients. There was a positive correlation between age of onset and duration of PSO and their PASI and PASQ scores ( $P < 0.001$ ). There was no effect of the level of the PASI score and the patients' PASQ outcome. PsO patients were found to have other comorbidities such as Hypertension (26.4%), Diabetes (8.3%), Depression (9.7%) and cancer (4.2%). About 21% of PsO patients were treated with biologics.

## Birt Hogg Dube syndrome (BHD): two separate families in Saskatchewan

Angela Law; Peter R. Hull

University of Saskatchewan, Saskatoon, SK

**Introduction:** The cutaneous manifestation of BHD syndrome is limited to fibrofolliculomas. While these skin tumors are benign, they can be associated with spontaneous pneumothoraces and a high propensity of developing renal carcinoma. BHD syndrome is a rare, autosomal dominant inherited disease caused by a germline mutation in the BHD gene. This gene encodes for the protein folliculin (FLCN), which acts as a tumor-suppressor. This protein is expressed in a variety of tissue including skin, kidneys and lungs.

**Methods:** Two separate families have been diagnosed with BHD syndrome in Saskatchewan.

A 56 year old woman with recurrent pneumothoraces and a significant family history of the same, as well as facial fibrous papules was referred to the Dermatology clinic. Genetic testing was performed on this family. The second patient was a 70 year old woman with a personal and family history of spontaneous pneumothoraces as well as an individual with metastatic carcinoma of unknown origin. She too had numerous pale coloured, monoporphic, firm facial papules.

**Results:** The first patient has been shown to be heterozygous for the c.59delT mutation occurring in the FLCN gene. Biopsy confirmed that the fibrous papules on her face are fibrofolliculomas. A CT scan has shown a 5 mm

tumour in the right kidney which has not changed over a period of a year. The second patient has lesions that are consistent with fibrofolliculomas and is awaiting DNA testing. Other members of her family have declined to be examined. She has a normal renal ultrasound.

**Conclusion:** This case report illustrates the importance of examining the skin and considering genetic disorders in patients with recurrent pneumothoraces. Once a diagnosis of BHD syndrome is made, proper screening for related tumors is imperative

### **A consecutive treatment regimen of clobetasol propionate 0.05% spray followed by calcitriol 3 µg/g ointment for the management of moderate to severe plaque psoriasis**

**Mark Lebwohl<sup>1</sup> Jonathan S. Weiss<sup>2</sup> Suzanne Bruce<sup>3</sup> Bernard S. Goffe<sup>4</sup> Charles P. Hudson<sup>5</sup> Luz E. Colón<sup>5</sup> Lori A. Johnson<sup>5</sup> Norman Preston<sup>5</sup> Ron Gottschalk<sup>5</sup>**

1. Mount Sinai School of Medicine, New York, NY, USA; 2. Gwinnett Clinical Research Center, Inc., Snellville, GA, USA; 3. The Center for Skin Research, Houston, TX, USA; 4. Dermatology Associates PLLC, Seattle, WA, USA; 5. Galderma Laboratories, L.P., Fort Worth, TX, USA

In psoriasis treatment therapies, patients treated with super potent topical corticosteroids can achieve clearance of symptoms within two to four weeks and can maintain remission of symptoms with maintenance therapy involving less powerful topical steroids and/or other treatments. Clobetasol propionate spray, 0.05% (CP spray; Galderma Laboratories, L.P., Fort Worth, TX) is the only clobetasol propionate spray approved for treatment up to four weeks for those moderate to severe plaque psoriasis patients whose benefit/risk ratio supports the additional 2 weeks of treatment (beyond a 2-week treatment course). Vitamin D and its synthetic products have been used for decades to treat patients with psoriasis. Topical vitamin D formulations became the preferred route to deliver due to better efficacy and less potential for disruptions with calcium metabolism. Calcitriol ointment, 3 µg/g (Galderma Laboratories, L.P., Fort Worth, TX) contains the naturally occurring, active ointment metabolite of vitamin D<sub>3</sub>, and has recently been approved in the United States, becoming the only vitamin D<sub>3</sub> ointment available for the topical treatment of mild to moderate plaque psoriasis. Calcitriol has been shown to improve psoriasis symptoms when used as mono therapy and in combination with other topical psoriasis treatments and is with a low number of adverse events reported when used for up to 1 year. A multi-center, open-label study was conducted to evaluate the safety and efficacy of a consecutive treatment regimen of twice-daily CP spray, 0.05% for

up to 4 weeks followed by twice-daily calcitriol ointment, 3 µg/g for up to 8 weeks in the management of plaque psoriasis

### **Erythema annulare centrifugum following atypical Kawasaki disease**

**Kayi Li<sup>1</sup> Benjamin Barankin<sup>2</sup> Bari Cunningham<sup>3</sup> Joseph Lam<sup>4</sup>**

1. University of Toronto, Toronto, ON; 2. The Dermatology Centre, Toronto, ON; 3. University of California, San Diego, CA, United States; 4. University of British Columbia, Vancouver, BC

Kawasaki disease (KD) is an acute vasculitis of childhood that predominantly affects the coronary arteries. Erythema annulare centrifugum is a rare form of annular erythema that, to our knowledge, has not been previously reported following vasculitis. We present a case of a 12-month-old boy with erythema annulare centrifugum (EAC) after the development of atypical KD and review the pertinent features of the eruption.

Erythema annulare centrifugum (EAC) is an eruption characterized by persistent erythematous, annular or arcuate lesions that slowly enlarge centrifugally while clearing in the centre. While the exact etiology is unknown, EAC is understood to be a hypersensitivity reaction. EAC has been associated with systemic infections, medications, neoplasms and certain foods. The erythema responds poorly to treatment, but typically resolves within 6 months.

Kawasaki disease (KD), also known as mucocutaneous lymph node syndrome, is an acute, multisystem vasculitis often affecting children five years or younger. KD is 20 times more common in Northeast Asians compared to Caucasians, though clinical features present similarly across ethnic groups. To date, the etiology has not been fully elucidated. Standard treatments include intravenous immunoglobulin (IVIG) and acetylsalicylic acid in high doses. If unrecognized and untreated, 20-25% of patients go on to develop coronary aneurysms.

The diagnosis of KD may be missed especially when presentation is atypical or incomplete (<3 out of 5 diagnostic criteria met). Up to 15-20% may present with incomplete features, especially in children under 6 months of age. In such a context, recognizing cutaneous manifestations may facilitate investigations, diagnosis and early intervention of the underlying cause. We present the following clinically diagnosed case to highlight the important association of erythema annulare centrifugum in KD.

## Contact allergy to corticosteroids: what are the ideal patch-test standard screening allergens?

Jennifer Lipson<sup>1,2</sup> Melanie Pratt<sup>1,2</sup>

1. University of Ottawa, Ottawa, ON; 2. North American Contact Dermatitis Group (NACDG),

**Introduction:** Corticosteroids are a cause of delayed hypersensitivity. Four groups of corticosteroids are recognized, A, B, C, and D (subdivided into D1 and D2). Cross-reaction can occur within each group and between some groups. The objective of the study was to describe positive patch-test and cross-reaction patterns to corticosteroids and to identify the ideal corticosteroid screening allergens to be included in the standard screening series for the detection of contact allergy to corticosteroids.

**Methods and Results:** A retrospective analysis of 7548 patients patch-tested by the North American Contact Dermatitis Group (NACDG) between 2005 and 2008 was performed. A chi-square analysis was done for all corticosteroid screening allergens and propylene glycol for concomitant allergy. Overall, 4.5% of patients tested had positive reactions to corticosteroids. Positive reactions to only one corticosteroid were seen in 3.4% and to more than one in 1.1%. Tixocortol-21-pivalate allergy was the most common with a frequency of 2.6%, followed by budesonide 0.1% (1.1%), clobetasol-17-propionate (0.8%), hydrocortisone-17-butyrate (0.5%), triamcinolone acetonide (0.3%) and desoximetasone (0.2%). The frequency of propylene glycol allergy was 2.5%. There was a statistically significant rate of concomitant allergy found between many of the corticosteroids in the screening series, as well as with propylene glycol.

**Conclusion:** We will discuss and provide evidence for which are the best screening agents to identify contact allergy to corticosteroids from groups A-D2, the frequency of broad versus narrow allergy, patterns of concomitant allergy, whether alcohol or petrolatum is a better vehicle for hydrocortisone-17-butyrate and the relationship between propylene glycol and corticosteroid allergy.

## Successful treatment of calciphylaxis with intravenous sodium thiosulfate in a nonuremic patient

Carolina Lucena Fernandes; Dominique Hanna; Bruno Maynard

CHUS, Division of Dermatology, Department of Medicine, University of Sherbrooke, Sherbrooke, QC

**Introduction:** Calciphylaxis, also known as calcific uremic arteriopathy, is a life-threatening condition traditionally observed in patients with end-stage renal disease. Cases of calciphylaxis occurring in nonuremic patients have also been reported. However, little is known about such a rare condition and treatment has been mainly empirical.

**Methods and Results:** A 55-year-old woman presented with a 12-month history of deep ulcers involving both lower legs with severe intractable pain. Diagnosis of calciphylaxis was twice confirmed on histopathological studies obtained by punch biopsies.

The patient's medical history included rheumatoid arthritis treated with methotrexate and low-dose prednisone. She was also taking warfarin for a previous pulmonary embolism. She had normal renal and parathyroid function.

After nonresponse to conventional therapy and wound care, treatment with sodium thiosulfate (STS) was begun; 25g were given intravenously over 60 minutes 3 times weekly. Monitoring of side effects consisted of electrolytes, venous gas and electrocardiogram performed 1 hour after each treatment.

After 8 weeks of treatment, 50% improvement of skin ulcers was noted; however, the pain was unchanged and the patient remained heavily handicapped. She had many side effects such as transient severe nausea, hypernatremia necessitating heavy hydration, mild hypokaliemia and hypocalcemia.

After 12 weeks, sodium thiosulfate was stopped on the patient's request for palliative care. Four weeks later, she had sudden dramatic relief in symptoms and ulcers had completely healed after 6 months.

**Conclusion:** The reported duration of STS treatment ranges from 6 weeks to 34 months in patients with calciphylaxis. In most cases, pain relief occurs many weeks before wound healing. Careful monitoring for adverse transient secondary effects is advised. Wound care and adequate pain control must also be part of a global interventional approach.

No conflict of interest to declare.

## Efficacy of alefacept in combination with narrow-band UVB compared to alefacept alone in subjects with moderate to severe chronic plaque psoriasis: week 16 results of the Canadian Alefacept Phototherapy Psoriasis study

Harvey Lui<sup>1</sup> Wayne Gulliver<sup>2</sup> Jerry Tan<sup>3</sup> Neil Shear<sup>4</sup> Robert Bissonnette<sup>5</sup>

1. Department of Dermatology and Skin Science, University of British Columbia, Vancouver, BC; 2. Memorial University of Newfoundland, Division of Dermatology, St. John's, NL; 3. University of Western Ontario, London, ON; 4. University of Toronto, Division of Dermatology, Department of Medicine, Toronto, ON; 5. MedQualis Inc., Montreal, QC

**Introduction:** Although previous trials demonstrated the safety of narrow-band UVB (nbUVB) with alefacept, these studies did not have sufficient power to address the efficacy of this combination. The present study was designed to assess the efficacy of the alefacept in combination with nbUVB compared to alefacept alone in subjects with moderate to severe chronic plaque psoriasis.

**Methods & Results:** This was a Canadian, multicentre, 1:1 randomized, prospective, open-label study in 98 subjects with  $\geq 10\%$  affected Body Surface Area (BSA) and Psoriasis Area Severity Index (PASI) score  $\geq 10$ . After a protocol-specified washout period, subjects received alefacept (15 mg IM once weekly) alone or in combination with nbUVB (three times weekly) for 12 weeks, followed by a 24 week observation period. A blinded assessor evaluated PASI, Physician Global Assessment (PGA) and affected BSA every 4 weeks. The primary endpoint was the proportion of subjects achieving a PASI 75 response at Week 16. Secondary efficacy endpoints at Week 16 included: change in affected BSA, proportion of subjects achieving a PGA of clear or almost clear (C/AC), and proportion of subjects achieving a PASI 90. At Week 16, significantly more subjects receiving the alefacept/nbUVB combination achieved a PASI 75 response compared to alefacept alone (45% vs 22%,  $p=0.032$ ). The alefacept/nbUVB combination was also associated with a significantly greater mean reduction in affected BSA compared to alefacept alone ( $-14\pm 9$  vs  $-9\pm 13$ ,  $p<0.001$ ). There was no statistical difference in the proportion of subjects who achieved a PGA C/AC and PASI 90 between the alefacept/nbUVB combination and the alefacept alone groups. One serious adverse event (lower leg edema) was possibly related to therapy in the alefacept/nbUVB combination. No other significant safety concerns were identified.

**Conclusion:** The alefacept/nbUVB combination demonstrated improved psoriasis outcomes and was well tolerated compared to alefacept alone at Week 16.

## Granular parakeratosis: an extensive case involving the groin

Carrie B. Lynde; John N. Kraft; Sanjay Siddha

Division of Dermatology, University of Toronto, Toronto, ON

**Introduction:** Granular parakeratosis is a recently recognized dermatosis resulting from disorderly keratinization with a possibility of abnormal filaggrin processing. It is most commonly reported to occur in the axillae of obese middle-aged white women. Mechanical irritation (e.g. friction and humidity in skin folds), and chemical irritation including a contact reaction of antiperspirant deodorants have been proposed as triggers of this dermatosis. Clinically, it may resemble acanthosis nigricans, confluent and reticulated papillomatosis, dermatitis, psoriasis, Hailey-Hailey disease, tinea, and verrucae. There is no optimal therapy for this condition. Case reports have shown treatment success with topical antifungals, corticosteroids, retinoids, vitamin D analogs, as well as oral antibiotics, antifungals, and retinoids.

**Methods:** We present a case of a 55 year old male with type 6 skin with an asymptomatic eruption in the groin for the past 10 years. He had previously tried treating the eruption with topical steroids, antifungals, and antibiotics without success. Clinical examination revealed symmetric well-demarcated plaques with a light scaly surface on an erythematous base involving both inguinal folds. Wood's lamp examination showed no coral red fluorescence. Microscopic examination and fungal culture of skin scrapings were negative. Skin biopsy was initially signed off as verruca vulgaris.

**Results and Conclusions:** Given that the clinical picture did not correspond to the biopsy result, we had the slides reviewed. Pathology revealed acanthosis with minimal spongiosis, papillomatosis, and a mild perivascular lymphohistiocytic infiltrate. There was hyperparakeratosis with columnar parakeratosis overlying papillomatous epidermis. PAS staining did not reveal any fungal elements. There was no evidence of HPV by linear array analysis. The patient was treated with topical tretinoin 0.01% locally as tolerated and showed an excellent response. This case illustrates that granular parakeratosis can be challenging to diagnose and treat and should be considered in the differential diagnosis of intertriginous papulosquamous lesions.

## Etanercept combined with short courses of narrow-band UVB in patients with psoriasis vulgaris

Charles W. Lynde<sup>2</sup> Aditya K. Gupta<sup>3</sup> Lyn Guenther<sup>4</sup>  
Yves Poulin<sup>5</sup> Robert Bissonnette<sup>1</sup>

1. Innovaderm Research Inc., Montreal, QC; 2. Lynderm Research Inc., Markham, ON; 3. Mediprobe Research Inc., London, ON; 4. The Guenther Dermatology Research Centre, London, ON; 5. Centre de Recherche Dermatologique du Quebec Metropolitain, Ste-Foy, QC

**Introduction:** Etanercept is one of the most widely used systemic treatments for moderate to severe psoriasis. Phase III registration trials showed that approximately 49 % of patients reached PASI 75 at Week 12 and 21% reached PASI 90. The objectives of this trial were to determine if addition of UVB phototherapy to etanercept treatment in patients who did not achieve PASI 90 with etanercept monotherapy, would increase PASI 90 response, and if this combination is safe.

**Methods and Results:** Patients were eligible for enrolment in this multicenter study if they had moderate to severe psoriasis with a PASI and a Body Surface Area of at least 10 at baseline. All patients received etanercept 50 mg twice a week for 12 weeks. Patients who reached PASI-90 at week 12 were discontinued from the study. At week 12, the remaining patients were randomized (1:1) to receive either etanercept alone at a dose of 50 mg once a week, or in combination with narrow-band (nbUVB) three times weekly for periods of 4 weeks. Patients were evaluated at weeks 4, 12, 16, 20 and 24. Ninety-nine (99) patients were enrolled in this study; 16 reached PASI-90 at Week 12. Seventy-five patients were randomized at week 12 to receive either etanercept alone or etanercept plus nbUVB. The last patient last visit will take place at the end of January 2010 and results will be available in June 2010. No serious adverse drug reactions have been reported so far.

**Conclusion:** This study will provide efficacy and safety data on the addition of UVB to etanercept in patients with psoriasis who do not achieve PASI 90 at week 12 with etanercept as monotherapy.

Research funded by Amen Canada Inc. and Wyeth, A Pfizer Company

## Hand dermatitis guidelines — a Canadian perspective

Charles Lynde<sup>1</sup> Lyn Guenther<sup>2</sup> Thomas Diepgen<sup>3</sup>  
Denis Sasseville<sup>4</sup> Yves Poulin<sup>5</sup> Wayne Gulliver<sup>6</sup> Kirk Barber<sup>7</sup>  
Robert Bissonnette<sup>8</sup> Vincent Ho<sup>9</sup> Jack Toole<sup>10</sup> Neil Shear<sup>11</sup>

1. Lynderm Research, Markham, ON; 2. The Guenther Dermatology Research Centre, London, ON; 3. University Hospital of Heidelberg, Heidelberg, Germany; 4. McGill University Health Centre, Royal Victoria Hospital, Montreal, QC; 5. Centre de Recherche Dermatologique du Quebec Metropolitain, Quebec, QC; 6. NewLab Research, St. John's, NL; 7. Kirk Barber Research, Calgary, AB; 8. Innovaderm Research, Montreal, QC; 9. Department of Dermatology and Skin Science, University of British Columbia, Vancouver, BC; 10. University of Manitoba, Dermadvances Research, Winnipeg, MB; 11. Sunnybrook Health Sciences Centre, Toronto, ON

**Introduction:** Hand dermatitis (HD) is one of the most common skin conditions seen by dermatologists. Guidelines are urgently needed to provide the best care to patients.

**Methods:** An Expert Panel of leading Canadian and European experts developed Canadian-specific guidance on the epidemiology, burden, etiology, diagnosis, classification, prevention and treatment of HD. To support treatment recommendations, a literature search retrieved relevant bibliographic sources on hand eczema/hand dermatitis.

**Results and Discussion:** HD is a common disease with a prevalence of up to 10%, or higher, in high-risk occupations. It has a significant impact on patients' working lives through morbidity and lost earnings, and causes a reduction in quality of life similar to that seen in psoriasis. Classification is complex; the multifactorial etiology, morphology, and location must all be considered. A detailed clinical history and close examination of the lesions is mandatory. Clinical management is based on the features and nature of the disease. Acute HD should be aggressively treated with potent topical corticosteroids (TCS) to prevent progression, as if the disease becomes chronic, it requires complex management strategies. In chronic HD (CHD), initial treatment with TCS is strongly indicated by the available evidence. For moderate or severe CHD unresponsive to TCS, phototherapy or alitretinoin is indicated, with alitretinoin having the strongest level of evidence based on RCTs. In severe CHD, systemic immunosuppressants may provide benefit, but the evidence for their efficacy is poorly documented. Whichever active treatment is chosen, it should be supported by emollient therapy, hand protection, and patient education on the avoidance of irritants and allergens implicated in their disease.

## Impact of botulinum toxin type A (Botox®) on health utility in adults with hyperhidrosis: baseline characteristics and interim results of a large ongoing phase IV prospective observational cohort study (MDs on Botox® Utility-Mobility) in Canada

Rob A. Miller<sup>1</sup> M. Jog<sup>2</sup> Ted Wein<sup>3</sup> Richard Beauchamp<sup>4</sup> Meetu Bhogal<sup>5</sup> Susan Simonyi<sup>5</sup>

1. Dalhousie University, Halifax, NS; 2. University of Western Ontario, London, ON; 3. McGill University, Montreal, QC; 4. University of British Columbia, Vancouver, BC; 5. Allergan Inc., Markham, ON

**Introduction:** Hyperhidrosis is a common and troublesome condition that causes significant distress. BOTOX® is effective for hyperhidrosis but little is known regarding the impact of treatment on health outcomes. MOBILITY study investigators are collecting data on the impact of BOTOX® on health utility in patients receiving the drug for approved therapeutic indications, including hyperhidrosis.

**Methods and Results:** The SF-12v2 Health Survey and Global Rating Scale are administered at baseline, week 4 and subsequent visits. Physical component scores (PCS), and mental component scores (MCS) are derived from self-reported SF-12v2 and SF-6D data. Continuous data were analyzed by student's t-test and dichotomous data by Chi-square test. Overall, 917 patients with hyperhidrosis, adult focal spasticity, cervical dystonia, 7th cranial nerve disorder, cerebral palsy, blepharospasm and other diagnoses are enrolled at 40 sites. 608 patients with week-4 data were included in the interim analysis, 64 of whom (10.5%) had hyperhidrosis. The mean age of hyperhidrosis patients was 34.5 years (range 14.1-81.6), 82.8% (53/64) were female, and 25% (16/64) were BOTOX®-naïve. Hyperhidrosis patients had received a mean of 3.4 injections (range 1-9) over a mean duration of 13.9 months (range 0-57.2). The mean (median) baseline BOTOX® dose in hyperhidrosis patients was 183.1 (200) Units (range 60-400). Among treatment-naïve patients with hyperhidrosis significant differences in self-reported SF-6D scores ( $p=0.0077$ , continuous data), and MCS score ( $p=0.0014$ , continuous) were reported between baseline and week 4. This trend was not significant among non-naïve patients.

**Conclusions:** This interim analysis detected rapid and significant improvement in health utility in patients initiating treatment with BOTOX® for hyperhidrosis. The greatest improvement was obtained in the mental health domain, which is not surprising in the case of hyperhidrosis. The lack of significant improvement in patients already on

treatment suggests that once established, the benefit of treatment is maintained over time.

## A comparison of the quality of life (QOL) of people with psoriatic arthritis (PsA) and those with psoriasis (Ps) only

Farheen Mussani<sup>1</sup> Vinod Chandran<sup>2</sup> Lihi Eder<sup>2</sup> Sutha Shanmugarajah<sup>2</sup> Arane Thavaneswaran<sup>2</sup> Dafna Gladman<sup>2</sup> Cheryl Rosen<sup>2</sup>

1. University of Toronto, Toronto, ON; 2. Toronto Western Hospital, Toronto, ON

**Introduction:** PsA is an inflammatory arthritis present in approximately 25% of people with Ps. Both conditions significantly impact QOL. It is hypothesized that people with PsA will have poorer QOL because of the added burden of arthritis, age and age-related comorbidity.

**Methods:** All patients with Ps were examined by a rheumatologist using a standardized protocol to establish whether PsA was present. Patients completed the Health Assessment Questionnaire (HAQ), SF-36, Dermatology Life Quality Index (DLQI), EQ-5D and Fatigue Severity Scale (FSS). Mean scores were compared between the two groups using t-tests.

**Results:** 201 people with Ps were studied. 40% were women; the mean age was 46.8y; the mean age of onset of Ps was 30.2y. 201 people with PsA were studied. 39% were women; the mean age was 51.7y; the mean age of onset of Ps and PsA was 27.1y and 36.9y, respectively. Ps patients had a mean PASI score of 0.5, while the score of PsA patients was 3.9 ( $p=0.0025$ ). Mean questionnaire scores are shown in the table. All questionnaires, except the DLQI, showed a significant decrease in QOL for people with PsA, compared to those with Ps only. The skin specific DLQI questionnaire revealed a lower QOL in people with Ps only. The PASI was used to correlate between the DLQI and the severity of Ps. Positive correlation between PASI and DLQI was confirmed for all patients (Pearson correlation coefficient=0.38).

Questionnaire	Mean(SD): Ps(n=201)	Mean(SD): PsA(n=201)	p-value
HAQ(0-3)	0.1(0.3)	0.6(0.7)	≤0.0001
SF36-Physical Summary(0-100)	49.7(9.4)	42.2(12.2)	≤0.0001
SF36-Mental Summary(0-100)	47.1(10.7)	46(12.1)	0.3269
DLQI(0-30)	7.7(6.1)	4.5(5.0)	≤0.0001
EQ-5D	0.9(0.1)	0.8(0.2)	≤0.0001
FSS(0-10)	3.4(2.5)	4.3(3.1)	0.0007

**Conclusion:** PsA patients have a poorer QOL shown by all questionnaires except the DLQI. The DLQI positively correlated with the PASI score; thus, severity of Ps is a factor in determining QOL.

## Diffuse rash in a male with HIV

**Eiman Nasser; Suzanne Chartier**

Centre Hospitalier de l'Université de Montréal, Montréal, QC

A 38 year old male known for human immunodeficiency virus (HIV), Burkitt lymphoma, hepatitis C infection, anal intraepithelial neoplasia with multiple genital warts, and episodes of primary and secondary syphilis treated in 2007 and 2008 respectively, was referred to our dermatology clinic in November 2009 for a diffuse squamous maculopapular rash with infiltrated facial plaques.

Punch biopsy of a papule on the torso along with serology and a lumbar puncture confirmed the diagnosis of neurocutaneous syphilis.

This case highlights the importance of suspecting *Treponema pallidum* infection in patients with HIV presenting with squamous macules, papules, and plaques. Individuals with HIV have a higher risk of co-infection with syphilis, and current guidelines recommend more aggressive serological monitoring of syphilis in these patients. However, data suggests that patients with HIV are not necessarily at increased risk for neurosyphilis or treatment failure with standard regimens.

## Malignancies in ustekinumab-treated moderate-to-severe psoriasis patients: observations with up to 3 years of follow-up and comparisons to the general United States population

**K Papp<sup>1</sup> V Ho<sup>2</sup> N Yeilding<sup>3</sup> P O. Szapary<sup>3</sup> M C. Hsu<sup>3</sup> Y Poulin<sup>4</sup> R G. Langley<sup>5</sup> K Reich<sup>6</sup>**

1. Probit Medical Research, Waterloo, ON; 2. University of British Columbia, Vancouver, BC; 3. Centocor Research & Development, Inc., Malvern, PA, United States; 4. Centre Dermatologique du Quebec Metropolitain, Quebec City, QC; 5. Dalhousie University, Halifax, NS; 6. Dermatologikum Hamburg, Hamburg, Germany

**Objective:** Malignancy rates were evaluated in ustekinumab (UST) clinical trials for up to 3yrs and compared with rates expected in the general US population.

**Methods and Results:** The incidences of basal and squamous cell cancers or nonmelanoma skin cancers (NMSCs) and all other malignancies were evaluated in patients with moderate-to-severe plaque psoriasis treated in Phase 2 and 3 trials. For all other malignancies, except NMSC, standardized incidence ratios (SIRs) compared observed malignancy rates in UST-treated patients to rates expected in the US population adjusting for age, sex and race based on data available in the National Institutes of Health SEER database (2000-2004). 3117 patients were treated with UST for 4774 patient-years of follow-up (P-Y) for up to 3yrs (median follow-up of 1.7yrs with 1247 patients treated for 2yrs). The incidence of NMSC (per 100P-Y) for the UST45mg and UST90mg groups was 0.64 (95%CI:0.35, 1.08) and 0.77(95%CI:0.47,1.19), respectively; 34 cases were observed and included 28 basal cell and 9 squamous cell skin cancers (basal to squamous cell ratio, 3:1). The incidence (per 100P-Y) of NMSC occurrence by year evaluated for the UST combined group was 0.94(95%CI:0.61,1.41), 0.44(95%CI:0.18,0.90) and 0.47(95% CI:0.10,1.36) for Yrs 1,2 and 3, respectively; the respective rates of other malignancies were 0.39(95%CI:0.19,0.72), 1.00(95%CI:0.57,1.63), and 0.16(95%CI:0.00,0.86). The incidence (per 100P-Y) of other malignancies for the UST45mg and UST90mg groups was 0.69(95% CI:0.39,1.13) and 0.46(95%CI:0.24,0.81), respectively; 27 cases were observed and included (≥2 cases) prostate, breast, melanoma, colorectal, renal, head and neck. The rate of these malignancies reported in UST-treated patients was comparable to the rate expected in the general population (SIR = 1.05[95% CI:0.69,1.53]).

**Conclusions:** Malignancy rates remained low and stable with no observed UST dose effect. The observed malignancy rate, excluding NMSC, was consistent with the expected rate in the general US population in the SEER

database. Additional analyses with 5yrs of follow-up are planned to continue examining the impact of IL-12/23 blockade on malignancy rates.

### **Impact of adalimumab on quality of life and depression in psoriasis patients: results from PRIDE**

**Kim A. Papp<sup>1</sup> Nicholas Bansback<sup>2</sup> Charles W. Lynde<sup>3</sup> Wei Zhang<sup>2</sup> Daphne Guh<sup>2</sup> Hong Qian<sup>2</sup> Marie-Josée Martel<sup>4</sup> Alexandra Goyette<sup>4</sup> Aslam Anis<sup>5</sup> Henrique D. Teixeira<sup>4</sup>**

1. Probit Medical Research, Waterloo, ON; 2. Centre for Health Evaluation and Outcome Sciences, Vancouver, BC; 3. Lynderm Research, Markham, ON; 4. Abbott Laboratories, St-Laurent, QC; 5. School of Population and Public Health, University of British Columbia, Vancouver, BC

**Introduction:** We aim to evaluate the effect of adalimumab on health-related quality of life and patient-reported outcome (PRO) measures, including depression and health utility in patients with active plaque psoriasis.

**Methods, Results:** PRIDE (A Canadian Open-Label Access PRogram to Evaluate the Safety and the Effectiveness of Adalimumab When Added to InaDEquate Therapy for the Treatment of Psoriasis) was an open-label, multicenter, Phase IIIb study in Canada. Patients with active moderate to severe plaque psoriasis who failed to respond to, or were intolerant of, prior therapies (phototherapy, cyclosporine, methotrexate, and/or oral retinoids) received adalimumab (80 mg) at Week 0 followed by adalimumab (40 mg) every other week beginning at Week 1 through Week 23. Changes in the Dermatology Life Quality Index (DLQI), Beck Depression Inventory-II (BDI) and EQ-5D between baseline and Week 16 were evaluated. A total of 203 patients (male, 61%; mean age, 46 years; mean PASI score, 20) were enrolled at 26 sites. At baseline, mean DLQI, BDI and EQ-5D were 12.9, 9.3, and 0.79, respectively. At Week 16, the mean DLQI score had improved to 2.9 (change=10.0;  $p<0.0001$ ); the BDI was reduced to 5.2 (change=4.2;  $p<0.0001$ ), and the EQ-5D had improved to 0.89 (change=0.10;  $p<0.0001$ ). Improvements were even greater in patients with a baseline DLQI score  $>10$ .

**Conclusions:** Adalimumab treatment was associated with statistically significant improvements in PROs, including depression. The results of this open-label study were consistent with outcomes observed in Phase III trials of adalimumab, confirming that adalimumab has a substantial impact on patient health-related quality of life.

### **Online patient survey in moderate-severe psoriasis: are joint pain related symptoms indicative of undiagnosed arthritis?**

**Kim A. Papp<sup>1</sup> Carin Binder<sup>2</sup> Fernando Camacho<sup>3</sup>**

1. Probit Medical Research, Waterloo, ON; 2. Janssen-Ortho Inc., Canada, Toronto, ON; 3. Damos Inc, Toronto, ON

**Objective:** To explore whether there is an increased disease severity in psoriasis (PsO) patients with diagnosed arthralgias or association with specific symptoms that may be related to psoriatic arthritis (PsA).

**Methods:** An online survey using a consumer panel reporting a diagnosis of moderate-severe PSO. Subjects were asked if they had a diagnosis (yes/no) of psoriatic arthritis (PsA), osteoarthritis (OA) or rheumatoid arthritis (RA) and symptoms commonly attributed to arthralgias such as "morning stiffness", "swollen fingers/toes", "discomfort in joints/tendons", and "redness and pain of the eyes". Redness and pain of the eyes is more commonly associated with PsA and hence may be used as a differentiator for diagnosis.

**Results:** For patients without a diagnosis of PsA, OA or PsA+OA- 73%, 13.1%, 13.8% reported respectively none-1 symptom, 2 symptoms, 3-4 symptoms.

$\geq 50\%$  of patients with a diagnosis of PsA, OA or PsA+OA reported 3-4 symptoms attributed to arthralgias.

There was a statistically significant ( $P<0.0001$ ) association between number of arthralgia symptoms and PsO severity: the rating of severity increased as the number of symptoms increased.

A statistically significant association between the number of key symptoms and PsA severity ( $P = 0.004$ ) was noted: increasing number of arthralgia symptoms are associated with increased PsA severity.

36.3% of the surveyed population with 3 or 4 arthralgia symptoms are not diagnosed with OA/PsA while 31.7% are diagnosed with PsA, 14.6% with PsA+OA, and 17.4% with OA.

40.9% of patients with PsA, 10% of OA and 26.5% of PsA+OA vs 20.9% who weren't diagnosed with any bone arthralgias reported a BSA  $10+$ .

**Conclusions:** Physicians may be under diagnosing arthropathies in patients with PsO given that at least 1/3 of patients in this survey reported  $>3$  symptoms without a diagnosis of arthritis or arthralgia. More patients with PsA or PsA+OA reported higher BSA involvement. Future research is needed to define the true incidence of PsA.

## Efficacy and safety of tacrolimus 0.1% ointment for the treatment of facial seborrheic dermatitis

Kim A. Papp<sup>1</sup> Alexine Papp<sup>1</sup> Betty Dahmer<sup>1</sup> Christina Clark<sup>2</sup>

1. Probit Medical Research, Waterloo, ON; 2. None, Guelph, ON

**Introduction:** Tacrolimus is a topical calcineurin inhibitor with immunomodulatory, anti-inflammatory and fungicidal properties. A phase II, single-blind, randomized controlled trial comparing the efficacy and safety of tacrolimus 0.1% ointment with 1% hydrocortisone ointment for the treatment of facial seborrheic dermatitis was completed.

**Methods:** Adult patients with facial seborrheic dermatitis with an erythema score of  $\geq 1$  and an area index of  $\geq 0.05\%$  were enrolled in a 3-month study. Subjects were randomized to treatment with tacrolimus 0.1% ointment (n=16) or 1% hydrocortisone ointment (n=14) applied twice daily to symptomatic regions of the face. The primary efficacy measure was the severity of facial seborrhea at the end of treatment (day 84) as measured by the Seborrhea Area and Severity Index - Face (SASI-F). Secondary efficacy measures included the frequency of medication administration, interval between periods of application and the amount of medication used. Adverse events were assessed at every scheduled visit.

**Results:** The severity of facial seborrhea at the end of treatment was similarly improved in both treatment groups (P=0.86). Tacrolimus 0.1% ointment was used on significantly fewer days than 1% hydrocortisone ointment (711 vs. 334 total missed doses,  $p < 0.05$ ). The majority of doses were missed due to lack of symptoms. The adverse event profile for both agents was similar, however, there was a numerically higher incidence of adverse events in the hydrocortisone group (18 adverse events reported in 11 patients vs. 5 adverse events in 4 patients receiving tacrolimus).

**Conclusions:** Tacrolimus 0.1% ointment required significantly fewer applications compared to 1% hydrocortisone ointment in order to achieve a comparable clinical response in adults with facial seborrheic dermatitis. Tacrolimus was generally safe and well tolerated.

## Efficacy and safety of adalimumab when added to inadequate therapy for the treatment of psoriasis: results from the PRIDE study

Kim A. Papp<sup>1</sup> Henrique D. Teixeira<sup>2</sup> Benoit Gu  rette<sup>3</sup> Athanasios T. Koutsavlis<sup>2</sup> Vincent Ho<sup>4</sup>

1. Probit Medical Research, Waterloo, ON; 2. Abbott Laboratories, St-Laurent, QC; 3. Abbott Laboratories, Rungis, France; 4. Department of Dermatology, University of British Columbia, Vancouver, BC

**Introduction:** We aim to evaluate the safety and effectiveness of adalimumab for patients with active plaque psoriasis who had not adequately responded to prior psoriasis therapy.

**Methods and Results:** PRIDE (A Canadian Open-Label Access PRogram to Evaluate the Safety and the Effectiveness of Adalimumab When Added to InaDEquate Therapy for the Treatment of Psoriasis) was an open-label, multicenter, Phase IIIb study in Canada. Patients with active moderate to severe plaque psoriasis who failed to respond to, or were intolerant of, prior therapies (phototherapy, cyclosporine, methotrexate, and/or oral retinoids) received adalimumab (80 mg) at Week 0 followed by adalimumab (40 mg) every other week beginning at Week 1 through Week 23. The primary efficacy measure was PASI 75 response at Week 16. Secondary efficacy measures included PASI 90/100 and percentage change from baseline PASI score. Adverse events (AEs) and serious AEs were recorded. A total of 203 patients were enrolled at 26 sites. Baseline characteristics were as follows: male, 61%; mean age, 45.5 years; mean PASI score, 20; patients with previous exposure to biologic therapies, 38%. At Week 16, PASI 75 responses were achieved by 71% (144/203) of patients. PASI 90/100 responses were achieved at Week 16 by 49%/24% of patients, respectively. The mean percentage PASI score decrease from baseline to Week 16 was 79.5%. Mean percentage PASI improvement and response rates were maintained through Week 24. Nasopharyngitis and upper respiratory tract infection were the only AEs to occur in  $\geq 5\%$  of patients. Nine patients experienced serious AEs, 4 of which were considered possibly or probably related to adalimumab.

**Conclusions:** Adalimumab was safe, well-tolerated, and effective for the treatment of active plaque psoriasis in patients who had not adequately responded to prior psoriasis therapy. These results are consistent with high response rates observed in Phase III trials of adalimumab.

## Cutaneous draining sinus tract of dental origin: a case report

Shaqil Peermohamed; Habib Kurwa

University of Calgary Medical School, Calgary, AB

Cutaneous draining sinus tracts of dental origin present as persistent facial skin nodules and often present a diagnostic challenge. Patients may present to a dermatologist with no dental symptoms and may undergo unnecessary surgical procedures, delaying the correct diagnosis.

We present the case of a 70 year old female who presented with a two-year history of a nodule at her right naso-facial sulcus. Twenty years previously, she had a basal cell carcinoma excised from the same site. The patient described the lesion as itchy, bleeding upon scratching, and exuding pus. She denied any dental symptoms. The lesion was presumed to be a recurrence and she was referred for Mohs' micrographic surgery. Two previous biopsies failed to confirm a neoplasm.

The lesion was an ulcerated nodule measuring 11 x 5mm and appeared to be fixed to underlying bone. She underwent a further biopsy, which showed similar findings to previous biopsies - a neutrophilic rich infiltrate with dermal fibrosis consistent with a ruptured hair follicle or infundibular cyst.

Despite the lack of dental symptoms, a panoramic radiograph was requested and demonstrated a periapical radiolucency associated with the root of the right maxillary canine consistent with an abscess. The patient then underwent drainage of the abscess followed by root canal treatment.

This case highlights the need to consider an underlying dental origin in any chronically draining, fixed, nodulocystic papule of the face and neck despite the lack of dental symptoms. Dental abscesses that form a sinus tract usually drain via an intraoral sinus and may present with no symptoms. This may explain the absence of oral symptoms with a cutaneous draining sinus. While cutaneous sinus tracts of dental origin are rare, when they occur they tend to be from a mandibular abscess and drain onto the chin or the submandibular area. This case reminds us that maxillary dental abscesses can also rarely drain extracutaneously. It also serves to remind us of the importance of a diagnostic biopsy before embarking on Mohs' micrographic surgery.

## Maintenance of long-term efficacy of ustekinumab through year 3 for patients with moderate-to-severe psoriasis

Y Poulin<sup>1</sup> PD Ghislain<sup>2</sup> N Wasel<sup>3</sup> A Menter<sup>4</sup> H L. Sofen<sup>5</sup>  
N Yeilding<sup>6</sup> S Fakharzadeh<sup>6</sup> S Li<sup>6</sup> C Leonardi<sup>7</sup>

1. Centre Dermatologique du Quebec Metropolitain, Quebec City, QC; 2. St-Luc University Hospital, Brussels, Belgium; 3. Stratica Medical, Edmonton, AB; 4. Baylor Research Institute, Dallas, TX, United States; 5. Dermatology Associates, Los Angeles, CA, United States; 6. Centocor Ortho Biotech Services, LLC, Horsham, PA, United States; 7. Department of Dermatology, St. Louis University, St. Louis, MO, United States

**Introduction:** Long-term efficacy and safety of ustekinumab (UST), a fully human monoclonal antibody against interleukins 12 and 23, were assessed in patients with moderate-to-severe plaque psoriasis in the PHOENIX 1 trial.

**Methods, Results:** Patients (n=766) were randomized to receive UST 45mg or 90mg at Wk0 and Wk4 followed by q12wk dosing, or placebo. Placebo patients crossed over to UST 45mg or 90mg at Wk12. Wk28 nonresponders (<PASI50) discontinued UST; partial responders with <PASI75 at Wk28 or Wk40 had dosing adjusted to q8wks. After Wk40, PASI75 responders originally receiving UST were re-randomized to continue or withdraw from treatment. All placebo crossover responders had treatment withdrawn. Patients withdrawn re-initiated UST after losing 50% of their PASI improvement and were not included in efficacy analyses after Wk40 until 12wks following resumption of therapy (Wk76 in the majority of patients). Analyses included all patients treated with UST. Response was rapid and peaked at Wk24, when 76% and 85% of 45mg and 90mg patients, respectively, achieved PASI75. PASI and PGA responses were generally stable from Wks76-148. PASI75 rates were 62% and 75% at Wk76, and 64% and 76% at Wk148 for 45mg and 90mg patients, respectively. Median percent improvement in PASI ranged from 81-85% and 88-92% for 45mg and 90mg patients, respectively, between Wks76-148. For 45mg and 90mg patients who adjusted dosing (n=120 [32%], n=79 [23%], respectively), PASI75 response rates were 54% and 60% at Wk76 remaining stable at 51% and 57% at Wk148. Adverse events in 92% and 91%, serious infections in 0.8% and 2.9%, and malignancies in 4.0% and 0.8% of 45mg and 90mg patients, respectively, were noted. These rates did not appear to increase over time.

**Conclusions:** Initial promising responses to UST were sustained in the overall majority of psoriasis patients receiving maintenance therapy through Year 3.

## Alitretinoin is well tolerated in the treatment of severe chronic hand dermatitis

Yves Poulin<sup>1</sup> Marc Bourcier<sup>2</sup> Neil Shear<sup>3</sup>  
Robert Bissonnette<sup>4</sup> Juergen Maeres<sup>5</sup>

1. Centre de Recherche Dermatologique, Ste. Foy, QC; 2. Clinique de Dermatologie, Moncton, NB; 3. Sunnybrook & Women's College Health Science Centre, Toronto, ON; 4. Innovaderm, Montreal, QC; 5. Basilea Pharmaceutica International Ltd, Basel, Switzerland

**Objectives:** To summarize the safety profile of oral alitretinoin (9-cis retinoic acid) in the treatment of severe chronic hand dermatitis (CHD) based on data from three clinical trials.

**Methods:** [Study A] A double-blind, randomized, placebo-controlled trial in 1032 patients who received alitretinoin 10 mg (n=418) or 30 mg (n=409), or placebo (n=205) once-daily for up to 24 weeks. [Study B] An open-label, single study in 249 patients who received oral alitretinoin 30 mg once daily for up to 24 weeks. [Study C] A double-blind, placebo-controlled, randomized study that included 117 patients who responded to initial treatment in Study A and who subsequently relapsed within 24 weeks. These patients were re-randomized to a second course of the same dose of alitretinoin or placebo.

**Results:** [A and B] Dose-dependent adverse events (AEs) were typical for the retinoid class and comprised headache, flushing, erythema and dry skin effects. Headache was the most common AE in the alitretinoin 30mg groups and the most common AE leading to study withdrawal. Mucocutaneous effects (dry skin, dry eyes, dry mouth, dry lips and cheilitis) were seen less frequently than with other retinoids and occurred in approximately 10% of patients receiving the 30mg dose, compared to 4% receiving placebo. Changes in triglyceride and cholesterol levels and laboratory abnormalities in TSH/T4 were consistent with known retinoid effects. [C] No new safety signals were seen when patients who had initially received alitretinoin were exposed to a second course of the drug.

**Conclusions:** Oral alitretinoin taken once daily is well tolerated in the treatment of severe CHD unresponsive to potent topical corticosteroids. Adverse events are dose-dependent, manageable and consistent with retinoid class effects. Following a second course of treatment, no late-arising, cumulative toxicities were observed.

## Erythema induratum/nodular vasculitis: a case series and review of the literature

Vimal Prajapati<sup>1</sup> Parbeer Grewal<sup>1</sup> Geetika Verma<sup>2</sup>  
Alain Brassard<sup>1</sup>

1. Division of Dermatology & Cutaneous Sciences, Department of Medicine, University of Alberta, Edmonton, AB; 2. Division of Pulmonary Medicine, Department of Medicine, University of Alberta, Edmonton, AB

**Background:** Erythema induratum (EI) or nodular vasculitis (NV) is the most common form of lobular panniculitis with vasculitis, yet it is often mistaken for other conditions that are also characterized by chronic nodules on the lower extremities. An etiologic relationship with tuberculosis has been demonstrated, although other causes such as chronic hepatitis C infection and idiopathic cases have also been described. There is still controversy regarding nomenclature as some dermatologists use the terms EI and NV synonymously whereas others restrict the term EI to describe only those cases associated with tuberculosis while referring to the remaining cases as NV. Diagnosis and management of EI/NV is often challenging.

**Objectives:** (1) To illustrate a case series of three patients with EI/NV (two tuberculosis-associated cases and one idiopathic case). (2) Discuss the controversy in nomenclature and provide an approach to diagnosis and management by reviewing the literature.

**Methods:** Chart reviews were conducted for the three patients diagnosed with EI/NV and an electronic literature search of the PubMed database was performed using the key words:

- erythema induratum
- erythema induratum of Bazin
- erythema induratum of Whitfield
- nodular vasculitis

Additional sources were investigated when referenced by authors.

**Results & Conclusions:** Our case series of EI/NV demonstrates some of the challenges associated with diagnosis and management of this condition, and illustrates the interdisciplinary approach that is often required. After reviewing the literature, we provide a discussion of the controversy in nomenclature and outline an approach to diagnosis and management.

## What's in it? A study of 150 over-the-counter topical products for treatment of skin disorders

Vimal Prajapati<sup>1</sup> Christopher Skappak<sup>2</sup> Andrew Lin<sup>1</sup>

1. Division of Dermatology & Cutaneous Sciences, Department of Medicine, University of Alberta, Edmonton, AB; 2. Department of Pediatrics, Faculty of Medicine & Dentistry, University of Alberta, Edmonton, AB

**Background:** Many over-the-counter topical treatments are available for dermatologic conditions. Patients frequently use these products and often ask questions about them. As a result, the dermatologist should be knowledgeable about the ingredients of these products. In addition, many over-the-counter products are designated as "hypoallergenic," "non-comedogenic" or "fragrance-free", but rarely, if ever, are definitions of these terms provided on the product label.

**Objectives:** (1) To identify the active medicinal ingredients in commonly used over-the-counter products for treatment of skin disorders. (2) To review the literature in order to determine the definitions of the terms "hypoallergenic", "non-comedogenic" and "fragrance-free".

**Methods:** We visited several major pharmacies in Edmonton to identify over-the-counter topical products for treatment of skin disorders. We recorded their active ingredients by examining their product labels and visiting their official websites. We searched the PubMed database to determine the definition of "hypoallergenic", "non-comedogenic" and "fragrance-free". We also consulted textbooks and internet websites that were referenced by authors.

**Results:** We identified 150 over-the-counter topical products. These are intended for many skin disorders, including acne vulgaris, acrochordons, androgenetic alopecia, corns, calluses, dermatitis (atopic, contact, seborrheic, and unspecified), pruritus, psoriasis, rosacea, scars, and skin infections due to bacteria, viruses, fungi, yeasts, and mites. They contain a wide variety of active ingredients, including resorcinol, camphor, menthol, pramoxyl hydrochloride, benzoyl peroxide, zinc oxide, calamine, salicylic acid, capsaicin, and many others. We also discuss the definitions of "hypoallergenic", "non-comedogenic" and "fragrance-free" and provide examples of products with these designations.

**Conclusions:** Numerous over-the-counter topical products are available for treatment of various skin disorders. They contain a wide variety of active ingredients. The dermatologist should be knowledgeable about these ingredients, since patients often ask about their efficacy and side effects.

## APACHE: Acral pseudolymphomatous angiokeratoma of childhood

Kerri S. Purdy<sup>1</sup> Laura Finlayson<sup>1</sup> Sylvia Pasternak<sup>1</sup> Kathy Baxter<sup>2</sup>

1. Dalhousie University, Halifax, NS; 2. Atlantic Health Sciences, Saint John, NB

Ramsay et al identified the novel entity of pseudolymphomatous angiokeratomas in 1990. They described 'a scaly acral papular eruption with a florid pseudolymphomatous infiltrate' in five children. In all cases the process was unilateral. Subsequently, scattered case reports of this entity have appeared in the literature initially referred to as acral pseudolymphomatous angiokeratoma of childhood (APACHE), now usually referred to as pseudolymphomatous angiokeratomas. An otherwise healthy 8-year old girl presented with a five year history of an asymptomatic eruption on the right foot. She was on no medications, had no allergies and family history was significant for eczema in her brother. Lesions did not respond to topical corticosteroids or imiquimod. Clinical examination revealed 2-3mm linear verrucous angiomatous red papules grouped in clusters on the plantar and dorsal surfaces of the 2nd, 3rd and 4th toes as well as on the dorsum of the right foot. Histology revealed a dense nodular infiltrate of the dermis composed predominately of lymphocytes with immunohistochemical staining showing a mixture of B and T cells. There were also prominent blood vessels noted in the dermal infiltrate. This is a rarely described entity in the current dermatology literature. There have been 23 cases reported to date. These lesions are notoriously difficult to treat. Pseudolymphomatous angiokeratomas represent a benign cutaneous process.

## Wolf's isotopic response: a localized myxedematous infiltrate in the vaccination scar of a patient with Graves' disease

Jennifer C. Rodrigues; P. R. Mydlarski

University of Calgary, Calgary, AB

**Introduction:** Wolf's isotopic response describes the occurrence of a new skin condition at the site of another unrelated, healed skin disease. First described by Wyburn-Mason, it was subsequently characterized by Wolf et al. in 1985. The isotopic response has been reported in the healed lesions of herpes zoster, herpes simplex, varicella zoster, thrombophlebitis, tinea corporis as well as striae distensae. Subsequent dermatoses have included malignant (i.e., non-melanoma skin cancer, Kaposi's sarcoma, leukemia cutis and cutaneous metastasis), granulomatous

(i.e., granuloma annulare and sarcoidosis), inflammatory (i.e., morphea, lichen planus, vitiligo and graft-versus-host disease), and infectious skin diseases (i.e., verruca plana, molluscum contagiosum and tinea). Using a case presentation, we illustrate the concept of Wolf's isotopic response and review the pathophysiology of this phenomenon.

**Methods:** We describe the clinical and histological features of a patient with Graves' disease, thyroid acropathy, pretibial myxedema and Wolf's isotopic response manifesting as a localized myxedematous infiltrate at the site of an old vaccination scar. We summarize the results of a computer search on the isotopic response in the English language medical literature.

**Results/Conclusions:** Herein, we describe a novel manifestation of Graves' disease and review the pathophysiology of Wolf's isotopic response. We further discuss the role of viral, immunologic, neural, vascular and resistance factors in the localization patterns of skin disease.

## The coexistence of psoriasis and vitiligo: a review

Michael Sawchuk<sup>1</sup> Frank Spano<sup>1</sup> Lyn Guenther<sup>1</sup>  
Wei Jing Loo<sup>1,2</sup>

1. Division of Dermatology, Schulich School of Medicine, University of Western Ontario, London, ON; 2. St Joseph's Hospital, London, ON

**Introduction:** Psoriasis and vitiligo have been recognized as disease entities for thousands of years. The coexistence of these two diseases in individual patients, often in the same location, forces us to question whether the prevalence is higher than expected by chance alone.

**Methods:** A literature review of published papers in the English language was conducted using Medline, EMBASE, and the Cochrane library using the keywords psoriasis and vitiligo, both individually and in combination. Non-English papers were not used.

**Results:** A review of the literature identified three hundred and 38 articles of which 24 were relevant. In total, 28 case reports and 4 cases series highlighted the association between psoriasis and vitiligo. The published prevalence rates of psoriasis in patients with vitiligo varied from 2.7% in an expanded case series to 4.04% in a small case series.

**Conclusion:** An expanded case series rate of 2.7% is consistent with the expected coexistence rate of psoriasis in vitiliginous patients when looking at the background prevalence of either of these diseases alone. Therefore, it would appear that there is no common epidemiological

link and that coexistence of these two conditions is most likely by chance alone.

## Annular elastolytic giant cell granuloma associated with temporal arteritis leading to blindness

Ilya Shoimer; Judy Wismer

McMaster University, Hamilton, ON

Annular elastolytic giant cell granuloma (AEGCG) is a rare granulomatous disorder characterized by giant cells in the dermis phagocytosing damaged elastin fragments. The proposed etiology suggests solar radiation damaging elastic tissue, causing it to degenerate and become an auto-immune target. It is most commonly mistaken for granuloma annulare and possibly cutaneous sarcoidosis. AEGCG generally presents in predominantly sun-exposed areas as papules, patches or annular plaques with erythematous borders and a hypopigmented or atrophic center.

We report a case of a 71-year-old, otherwise healthy, man that presented with a six week history of a dermatitic eruption associated with a burning sensation. The lesions manifested as a striking erythematous elevated eruption with annular confluent plaques extensive over the scalp and face with sparing of the eyelids and submental region. There were additional scattered papules and plaques on the flexural neck, anterior chest, upper shoulders, back, legs, and dorsal hands extending to the arms. A diagnosis of AEGCG was made based upon the clinical and histologic picture, and treatment was initiated with a tapering dose of oral prednisone as well as topical steroid creams. About four months later, while tapering the steroid dose, this gentleman developed radiating headaches which were mostly bitemporal and shooting in nature. It should be noted that the patient decided to stop the prednisone without supervision. Further investigations were conducted and the patient was found to have bilateral temporal arteritis. This was followed by periods of blurred vision which later progressed to blindness.

Our case report demonstrates the importance of appropriate diagnosis and treatment of AEGCG. This case also raises awareness of temporal arteritis developing in individuals diagnosed with AEGCG. Any formation of a new headache should be taken seriously, investigated immediately and treatment of GCA should be implemented with oral prednisone to prevent further complications.

## Infiltrative presentation of morphea and LSA overlap

Ilya Shoimer<sup>1</sup> Nathan Rosen<sup>1</sup> Dalal Assaad<sup>2</sup>  
Channy Y. Muhn<sup>1</sup>

1. McMaster University, Hamilton, ON; 2. University of Toronto, Toronto, ON

Morphea and lichen sclerosus et atrophicus (LSA) are two sclerosing conditions of unknown etiology whose relationship is obscure. Morphea commonly involves the deep reticular dermis and subcutis, whereas LSA changes are typically demonstrated in the more superficial aspects of the dermis and the epidermis. There have been several reports in the literature documenting the coexistence of morphea and LSA within the same lesion, but none have been of an infiltrative nature.

We report a case of a 68-year-old man presenting with an indurated plaque characterized by an irregular mountain range-like surface on the right mid abdomen which later became infiltrated. Several punch biopsies, and later wedge biopsies, were performed and all were consistent with morphea and LSA overlap. An extensive literature review was conducted for atypical presentations of morphea and LSA as well as management options. Typically both conditions may resolve spontaneously, however treatment was initiated as the lesion was causing significant discomfort. The treatment options were reviewed and potential therapies were initiated, which included topical calcipotriene twice daily as well as intralesional triamcinolone injections (10mg/cc). After one month of topical calcipotriene, the lesion appeared to be grossly hemorrhagic, infiltrated and tender to palpation. The topical calcipotriene was discontinued as it caused a significant burning sensation with no notable improvement. The patient was then started on triamcinolone injections. Within two weeks, the tenderness of the lesion subsided substantially and the inflammation began to settle down.

This case report reaffirmed the coexistence of morphea and LSA within the same lesion. We have presented a unique infiltrative form of morphea and LSA overlap which has not been previously documented in the literature. The patient responded well to the triamcinolone injections (10mg/cc) resulting in decreased inflammation and tenderness of the lesion.

## Complication of a Kindler syndrome

Sophie Sivret<sup>1</sup> Julie Powell<sup>2</sup> Loukia Mitsos<sup>3</sup> Etienne Cardin-Langlois<sup>3</sup> Bruno Maynard<sup>1</sup> Dominique Hanna<sup>1</sup>

1. Université de Sherbrooke, Sherbrooke, QC; 2. Hôpital Ste-Justine, Université de Montréal, Montréal, QC; 3. Université McGill, Montréal, QC

**Introduction:** Kindler syndrome is a rare autosomal recessive genodermatosis characterized by trauma-induced acral blisters in infancy and childhood, photosensitivity and progressive poikiloderma.

**Methods:** A 23 year-old female patient with a personal history of Kindler syndrome presented with a tumoral mass on the palmar side of the right hand that was progressive for 8 months. Dermatological examination revealed a budding cerebriform mass of 8 x 6 x 3 cm. A 2 cm right axillary adenopathy was also found.

**Results:** Hand MRI showed extensive bone, muscular, vascular and tendinous invasion. Pet-scan showed a hypermetabolic lesion of 2.5 x 2.1 cm in the right axillary pit. The biopsies were consistent with (1) an aggressive squamous cell carcinoma of the hand and (2) a metastatic squamous cell carcinoma of the axillary adenopathy. Right hand amputation and right lymph node dissection were performed. Rapid and aggressive locoregional recurrence took place and palliative right shoulder amputation was done. The patient is under palliative radiotherapy and chemotherapy. Genotyping for KIND1 is in process.

**Conclusion:** Metastatic cutaneous squamous cell carcinoma is a rare but potentially devastating complication of Kindler syndrome. Close follow-up is therefore advised since early detection is primordial. Treatment should be aggressive and initiated without delay.

None of the authors have any conflict on interest.

## An unusual case of palmoplantar lichen planus

Laura Sowerby; Kevin Watters; Alfred Balbul

McGill University, Montreal, QC

**Introduction:** Palmoplantar lichen planus is a rare variant of lichen planus. It is often difficult to diagnose as it is morphologically quite different from classic lichen planus and it is frequently mistaken for other conditions more commonly affecting the palms and soles.

**Methods:** We report a case of a healthy 37 year-old man who presented with a 2-year history of painful, thickened, ulcerated lesions on the plantar surfaces of both feet. Examination revealed bilateral symmetric erosions with

violaceous/gray margins on the lateral plantar aspects and inner arches. The lesions were very tender. His hands demonstrated hyperpigmented plaques on the 4th and 5th distal fingers bilaterally. There were no mucous membrane findings.

**Results:** A biopsy done of the left sole showed a lichenoid dermatitis with prominent epidermal acanthosis and hyperkeratosis, with minimal parakeratosis. The histologic diagnosis was hypertrophic lichen planus. The patient was initially treated with topical 0.05% clobetasol propionate and topical 0.1% tacrolimus. He showed mild improvement after 2 months of treatment. The patient's erosive lesions cleared completely with the addition of oral acitretin.

**Conclusions:** This case is an unusual presentation of lichen planus of the palms and soles. While the histology clearly demonstrated a hypertrophic lichen planus, the clinical findings suggested an overlap of the palmoplantar, hypertrophic and erosive/ulcerative variants. We report the successful treatment of this entity with oral acitretin in combination with topical therapy.

## Critical appraisal of quality of clinical practice guidelines for treatment of psoriasis vulgaris 2006–2009

Jerry Tan<sup>1</sup> Barat Wolfe<sup>2</sup> Ranko Butolavic<sup>1</sup> Emily Jones<sup>1</sup> Andrea Lo<sup>1</sup>

1. University of Western Ontario, Windsor, ON; 2. University of Windsor, Windsor, ON

Clinical practice guidelines are systematically developed recommendations for specific clinical conditions. To ensure credibility, relevance, and feasibility; the Appraisal of Guidelines Research and Evaluation (AGREE) criteria have been developed as a means to evaluate their quality. The recent publication of numerous international clinical guidelines for management of psoriasis has led to a need to appraise their methodological quality.

We used AGREE to evaluate psoriasis guidelines published between 2006 to December 2009. Four reviewers independently evaluated each guideline using the AGREE instrument - comprised of 23 items in 6 domains: 3 for scope and purpose, 4 for stakeholder involvement, 7 for rigour of development, 4 for clarity and presentation, 3 for applicability, and 2 for editorial independence. Each item was rated on a scale of 1 to 4 (with higher numbers corresponding to greater quality). Eight guidelines from five separate working groups (i.e., Canadian, American, British, German, and European) fulfilled inclusion criteria and were evaluated. Four (Canadian, British, German, and European)

used AGREE standards in developing their guidelines. Nevertheless, each of the eight guidelines had important shortcomings in the following domains: stakeholder involvement (lack of piloting; inadequate determination of patient views), development rigor (inadequate procedure for updating), applicability (lack of discussion on organizational barriers), and editorial independence (from funding body). Inadequate stakeholder involvement was observed in all the guidelines.

Despite the use of pre-defined standards in their development, important deficiencies exist in current clinical treatment guidelines for psoriasis. These deficiencies may undermine their feasibility and applicability in clinical practice.

## Topical antioxidants prevent photoageing and non-melanoma skin cancer

G. Telford<sup>3</sup> K. A. Baker<sup>2</sup> W. P. Gulliver<sup>2,1</sup>

1. Memorial University of Newfoundland, St. John's, NL; 2. NewLab Life Sciences, Inc., St. John's, NL; 3. Department of Dermatology, University of British Columbia, Vancouver, BC

**Introduction:** Sun exposure adversely affects skin health by increasing cutaneous free radical levels causing cellular and DNA damage. Antioxidants (such as vitamins) can neutralise free radicals preventing the cutaneous changes associated with ageing and carcinogenesis. Studies have shown the beneficial effects of individual vitamins A, C and E on skin health and the prevention of photo-induced damage, however the effects of combining all 3 has been lacking until the present open-label trials.

**Methods:** Due to pH incompatibility, 2 creams were produced, a "day" cream with Vitamins C and E and a "night" cream containing retinyl palmitate (vitamin A), vitamin E and zinc. Approximately 200 female subjects (30-90 years old) applied vitamin A, C and E-containing creams daily for 6 years to investigate the effect of these vitamins on photoageing. Another trial of 50 subjects with actinic keratoses or non-melanoma skin cancers was also undertaken to study the effects of the creams on preventing cancer.

**Results:** The treatment regime was well-tolerated with <1% of subjects discontinuing treatment due to side effects. Healthier looking skin was seen by 6 weeks, resolution of actinic lentigo by 4 months, improvement in coarse lines by 1 year and by 3-5 years significant improvement in deep lines and firming of the skin around the eyes, jowls and neck. In the second trial, a 75% reduction in the frequency of skin cancers was noted.

**Conclusions:** A tri-vitamin regime with vitamins A, C and E ameliorates the extent of sun-induced skin changes and reduces the frequency of actinic keratoses and non-melanoma skin cancers. A tri-vitamin regime could prove superior to conventional sunscreens for the prevention of photoageing.

## An unusual case of primary cutaneous cytotoxic peripheral T-cell lymphoma

Mimi Thériault<sup>1</sup> Martin Gilbert<sup>2,3</sup> Éric Gagné<sup>4</sup>

1. Université Laval, Québec, QC; 2. Hôpital de l'Enfant-Jésus, Québec, QC; 3. Hôtel-Dieu de Lévis, Lévis, QC; 4. Hôtel-Dieu de Québec, Québec, QC

**Introduction:** Mycosis fungoides is the most frequent cutaneous T-cell lymphoma. Among other subtypes of CTCL, there are cases with unique clinical presentation and/or immunophenotype, which may be difficult to categorize even within the revised WHO-EORTC classification. Several of those rare cases are included in the peripheral T-cell lymphoma, NOS category. Their heterogeneity makes a specific and effective treatment a challenge.

**Methods and Results:** A 71-year old female first presented with papules and plaques in her lower right limb in 2007. Initial skin histopathology was consistent with sarcoïdosis. Sarcoïdosis work-up showed only a mild elevation of the angiotensin-converting enzyme. A year later, she presented rapidly progressing ulcers in both lower limbs. A second biopsy was consistent with a nodular vasculitis. Tissue cultures were negative and TB was excluded. Despite treatment, ulcers progressed and 2 months later, repeated biopsies ultimately showed massive atypical T-cells tissue infiltration consistent with a peripheral T-cell lymphoma. Immunophenotype showed CD2+, CD3+, CD4-, CD8-, CD20-, CD30+, CD34-, CD43+, CD56-,  $\beta$ -F1+,  $\delta$ -1-, Tia-1+, granzyme+, LMP-1-, EBER-1-. Gene rearrangement studies were positive for TCR- $\gamma$  and TCR- $\beta$ . Complete lymphoma staging was negative. Final diagnosis was "primary cutaneous peripheral T-cell lymphoma NOS, with cytotoxic phenotype". Patient rapidly deteriorated and died after 2 cycles of CHOP.

**Conclusions:** Variants of T-cell lymphomas can present as intractable ulcers of the lower limbs. Initial diagnosis can be delayed. Repeated biopsies and clinicopathologic correlation are keys for proper diagnosis. The link between sarcoïdosis and this subset of CTCL is unclear. Further studies are needed to better classify these rare types of T-cell lymphomas and to select appropriate therapy.

## Severe nodulocystic acne recalcitrant to systemic conventional therapies including retinoids: review and case presentation

Zohair Tomi<sup>1</sup> Marwan Al Saedi<sup>2</sup>

1. Memorial University, St. John's, NL; 2. Jeddah University, Jeddah, Saudi Arabia

Acne is a common, yet complex skin disorder of the pilosebaceous units that is especially prevalent among people aged 15-24 years, and the associated psychosocial impact can be significant. The introduction of isotretinoin in the treatment of acne in the early 1980s has brought a significant change in our approach to the treatment of this disease. Because of its extraordinary efficacy, it became the drug of choice for severe cases of acne, replacing all other therapies, including dapsone.

Acne that is recalcitrant to therapy is a common clinical dilemma. Some of the influencing factors that contribute to treatment challenges include among others, poor adherence, inadequate therapy, and diagnostic mimics. The usefulness of dapsone has long been recognized in the treatment of severe, nodulocystic, inflammatory acne. Although it is mentioned in most of the textbooks and review articles as one of the many therapeutic options for treating acne, the evidence to support this has been inadequate and largely anecdotal or based on single case reports. Dapsone (25-200 mg/day) is a useful treatment for recalcitrant nodulocystic acne. It has both anti-inflammatory and antibacterial effects. Since possible adverse effects include methemoglobinemia, hemolysis, and anemia, patients must have hematologic monitoring. A glucose-6-phosphate dehydrogenase level must be normal before beginning therapy.

We present a 20-year old male with recalcitrant severe cystic scarring since age 14. He failed to respond to years of optimum doses of minocycline, tetracycline, erythromycin, sulphamethoxazole, isotretinoin, intra-lesional corticosteroids and oral prednisone. All the active cystic acne lesions resolved within 2 months after starting dapsone. He remains in remission on dapsone 4 months later. We will review the literature and discuss future alternative options in recalcitrant acne refractory to retinoids.

### References

Ronni Wolf, Binnur Tuzun, and Yalcin Tuzun. Volume 18, Issue 1, January-February 2000, Pages 37-53.

J. K. L. Tan, MD, FRCPC Department of Medicine, University of Western Ontario, London, ON, Canada. Management of Recalcitrant Acne. Skin therapy letter 2008/4.4

## Sezary syndrome in a patient with Trisomy 21

Helene Veillette<sup>1</sup> Angélique Gagné-Henley<sup>1</sup>  
Geneviève Thérien<sup>2</sup> Afshin Hatami<sup>3</sup>

1. Université Laval, Quebec, QC; 2. CHA, Hôpital Enfant-Jésus, Quebec, QC; 3. Sainte-Justine Hospital Center, Montreal, QC

**Introduction:** Sezary syndrome is a rare form of cutaneous T-cell lymphoma (CTCL), in the same spectrum than mycosis fungoides. It is characterized by the triad of erythroderma, generalized lymphadenopathy and neoplastic T cells in the skin, lymph nodes and peripheral blood. Contrary to mycosis fungoides, Sezary syndrome has an aggressive clinical behaviour. The pathogenesis is unknown, but tumoral cells often present chromosomal abnormalities. On the other hand, trisomy 21 (Down syndrome) is the most common chromosomal abnormality and it is caused by the presence of an extra 21st chromosome. This syndrome has different physical features and patients are at higher risk of congenital heart defects and leukemia.

**Case Report:** A 28 years old man, known for trisomy-21, was sent to us for the evaluation of a pruritic rash. On examination, we noted an erythrodermia, diffuse non-cicatricial alopecia and ectropions. He also developed generalized adenopathies.

We performed a skin biopsy, compatible with mycosis fungoides. The blood tests showed lymphocytosis (6,35 x 10<sup>9</sup>) with >50% of Sezary cells. The diagnosis of Sezary syndrome was made, with further investigation still to come on time of writing this abstract.

**Conclusion:** To our knowledge, this is the first reported case of Sezary syndrome occurring in a patient with Trisomy-21. In front of these two morbid medical conditions, and after discussion with the adoptive parents of the patient, we opted for a conservative, comfort-aiming, treatment.

## CAN-EASE: Canadian Assessment of Patient Outcomes and Effectiveness of Enbrel® in Psoriasis: an evaluation of treatment satisfaction and health outcomes

Ron Vender<sup>2</sup> Sheetal Sapro<sup>3</sup> Martin R. Gilbert<sup>4</sup>  
Richard Haydey<sup>6</sup> Lynde Charles<sup>5</sup> Vincent Ho<sup>7</sup> Melanie Poulin-Costello<sup>1</sup> Mike D. Setterfield<sup>1</sup> Jerry Syrotuik<sup>1</sup>

1. Amgen Canada Inc., Mississauga, ON; 2. Dermatrials Research, Hamilton, ON; 3. Institute of Cosmetic and Laser Surgery, Oakville, ON; 4. Centre Recherche Clinique, Martin R. Gilbert Inc., Quebec, QC; 5. Lynderm Research Inc., Markham, ON; 6. Winnipeg Clinic, Winnipeg, MB; 7. University of British Columbia, Division of Dermatology, Vancouver, BC

**Introduction:** The objective of this study was to describe patient outcomes in subjects with psoriasis who were prescribed etanercept in a Canadian real-world effectiveness clinical practice setting. Treatment satisfaction and health outcome data are described here.

**Methods and Results:** In this 12-month, multi-centre open-label single arm study, adult patients with moderate to severe psoriasis received etanercept 50 mg twice weekly SC for 12-weeks followed by etanercept 50 mg weekly SC for the remainder of the study. Of 230 patients treated, 178 patients completed the study. The primary endpoint was the proportion of patients achieving a status of mild or better ( $\leq 2$ ) on the Physician Global Assessment (scale 0-5) at month 12. Secondary endpoints included the change from baseline, measured at 3-month intervals, in the treatment satisfaction questionnaire for medication (TSQM) and EuroQoL-5D.

226 patients were included in this analysis. Missing values were imputed using LOCF. Significant improvements in treatment effectiveness, convenience and global satisfaction were reported after 3-months and were maintained to the end of the study. There was no change in patient evaluation of side effects from baseline to the end of the study. The EuroQoL-5D total score improved from a mean (SD) of 0.67(0.25) at baseline to 0.85(0.23) at study month 3 and was maintained to study completion 0.83(0.25). Baseline mean (SD) total score for patients with a diagnosis of psoriatic arthritis was lower than that of patients with no history of psoriatic arthritis, 0.57(0.28) and 0.73(0.21) respectively; however, at month 12 there was a decreased difference in mean (SD) scores, 0.81(0.25) and 0.84(0.24) respectively. A similar trend was observed in the EuroQoL-5D VAS scores.

**Conclusions:** The results suggest that in a real-world effectiveness clinical practice setting, patients who are

prescribed etanercept had an improvement in their quality of life and were satisfied overall with their treatment.

This study was funded by Amgen Canada Inc. and Wyeth, A Pfizer Company.

### **An open label, prospective cohort pilot study to evaluate the efficacy and safety of etanercept in the treatment of moderate to severe plaque psoriasis in patients who have not had an adequate response to adalimumab**

**Ronald B. Vender**

Dermatrics Research, Hamilton, ON

The past several years have seen the Canadian approval of 5 different biologic agents for the treatment of moderate to severe plaque psoriasis. Psoriasis has proven to be a difficult disease to treat and treatment failures, even with new biologic therapies, are not uncommon. The vast majority of clinical data for these medications is derived from treatment of biologic naïve patients, or patients who have not responded to, or lost response to, systemic therapy for psoriasis. There is currently little data available on therapeutic response of a second biologic therapy after loss of response, or no response, to the first line biologic therapy. It has become common clinical practice to switch medications that are structurally distinct but therapeutically similar in order to achieve an improved clinical outcome. Therapeutic interchange now is being applied to the biologic agents used to treat psoriasis.

A total of 10 patients with moderate to severe psoriasis who were currently using adalimumab for at least 12 weeks but had a PGA of mild or worse were transitioned to commercial etanercept 50 mg twice weekly (BIW) for 12 wks followed by a dose reduction to 50mg once weekly (OW) for an additional 12 weeks. Ethics approval was obtained and the study registered with clinicaltrials.gov.

The primary outcome measured was the mean change in Physician's Global Assessment (PGA) score from baseline to 12 weeks of etanercept therapy. The secondary outcomes measured included the mean change in Dermatology Quality of Life Index (DLQI), mean change in body surface area (BSA) covered in psoriasis, Subject's Global Assessment of disease (SGA), proportion of patients achieving an improvement in PGA score, from baseline to 12 weeks and again at 24 weeks and safety.

Overall there were significant favorable changes in all outcomes measured with respect to efficacy (PGA, SGA, BSA and DLQI). There were no significant safety issues noted

especially during the transition period from adalimumab to etanercept.

### **Double blinded vehicle controlled proof of concept study to investigate the recurrence of inflammatory and non-inflammatory acne lesions using tretinoin gel (microsphere) 0.04% in male patients post oral isotretinoin use**

**Ronald B. Vender**

Dermatrics Research, Hamilton, ON

As acne is a very common dermatological diagnosis affecting millions of North Americans most of who are adolescence and young adults, it is important to assess this condition. Although isotretinoin orally is commonly used for moderate to severe or scarring acne, it is not a cure. Quite often, acne does recur. The use of topical retinoids is a mainstay and basis of early acne treatment to prevent the progression to inflammatory lesions. Post oral isotretinoin, it is not uncommon for non-inflammatory papules and comedones to recur. Unfortunately this is unpredictable and varies within the acne population. However, there has been no formal study to look at the prevention of recurrence of these acne lesions post isotretinoin in a long term basis. This may enhance the therapeutic options for post isotretinoin patients in order to prevent recurrence of their disease.

This is an investigator initiated double blinded vehicle controlled proof of concept study in subjects with acne vulgaris will present results for the first ten subjects studies (males aged 18-45 years old). Subjects must have successfully completed a treatment of acne vulgaris with oral isotretinoin (minimum 4 months/maximum 6 months with an average of 5 months and a total of 120-150mg/kg/course). Subjects were randomized 1 to 1. The study duration was 24 weeks with visits at baseline (week 0) and at weeks 4, 8, 16, and 24. All study product was applied once daily for 24 weeks.

The primary endpoint of the absolute change in lesion counts (total, inflammatory, non-inflammatory) from baseline to week 16 and 24 will be presented. Results of the proportion of subjects who have an Investigator Static Global Assessment and a Subject's Global Assessment score of 0 or 1 at week 16 and 24 were calculated. Erythema, drying, and peeling were assessed by the investigator; burning/stinging and itching were assessed by the subject. Local tolerability assessments were performed by the investigator and subject at each study visit.

## **Malignant melanoma and Cowden disease**

**Caridad Vera; Nathalie Provost; Annie Bélisle;  
Danielle Bouffard**

Centre Hospitalier de l'Université de Montréal, Montreal, QC

We present the case of a woman with two primary malignant melanomas in which the Cowden disease was confirmed.

A 23 year-old female was referred for a melanoma on her right ankle. One year later a new lesion in her right leg revealed an in situ melanoma. The patient medical history included a right foot venous malformation, a sclerotic fibroma on the forehead, multiple benign thyroid nodules and a bilateral mastectomy because of an atypical ductal hyperplasia.

Examination showed an increased head circumference, a papillomatous tongue and one lipoma on her back. A heterozygous PTEN gene mutation was confirmed.

Cowden disease is characterized by mucocutaneous hamartomas, macrocephaly, lipomas, vascular anomalies and benign breast and thyroid lesions. The majority of patients have a mutation in the PTEN gene.

Patients are at risk of developing malignant tumours from breast, thyroid and endometrium. Other malignancies such as melanoma have anecdotally been reported.

## **Psoriasis patients' experiences at diagnosis: a qualitative analysis**

**Barat Wolfe<sup>2</sup> Jerry Tan<sup>1</sup> Fuschia Sirois<sup>2</sup>**

1. University of Western Ontario, Windsor, ON; 2. University of Windsor, Windsor, ON

Psoriasis is widely acknowledged as a disease that greatly impacts patients' quality of life. However, few studies have qualitatively examined psoriasis patients' experiences at the time of diagnosis. The purpose of this study was to explore patient experiences to understand the impact of information from providers at time of diagnosis.

Psoriasis patients from four practices across Canada completed an online survey related to the severity and impact of psoriasis on their daily lives. Data was analyzed from a series of open-ended questions related to information that patients found useful at the time of diagnosis, and that which they wish they had been provided. The data were subjected to a qualitative content analysis whereby individual responses were inductively evaluated for common themes and allocated into conceptual categories reflecting similar meaning. This analysis revealed the following

themes related to patient experiences at time of diagnosis, including: the need for information on the disease and on treatment options; potential expenditure of time and effort to find the right treatment; the need for providers to give hope, and for discussion of psychosocial issues regarding their condition.

Our findings indicate that psoriasis patients expect and desire a great deal of information and consideration at the time of diagnosis. Qualitative analysis, focusing on the lived experiences of patients, is inherently patient-centric and focuses on issues originating from patients - rather than those which may be imputed by researchers or providers. Attention to these patient perspectives at time of diagnosis may provide the foundation for satisfaction with their medical care, development of realistic expectations, and enhanced quality of life.

## **An assessment of undergraduate dermatology performance at the University of British Columbia**

**Aaron Wong; Patrizia Moccia; Jerry Shapiro; Harvey Lui**

The Department of Dermatology and Skin Science, University of British Columbia, Vancouver, BC

The Faculty of Medicine at the University of British Columbia has a four-year long medical undergraduate program. Students are geographically distributed among three sites, the University of British Columbia, University of Victoria, and University of Northern BC. Dermatology is taught in second and third year. The second year, pre-clinical dermatology curriculum includes one week of problem-based learning, lectures, clinical skills sessions, and dermatopathology seminars. The third-year clinical curriculum consists of one week of outpatient clinics, teaching-hospital based consults, lectures, and small-group teaching sessions. This format is replicated at all three sites in a similar fashion to ensure consistency and standardization.

The research proposal explores the following questions:

- 1) What is the 10-year trend in student results for a standardized assignment in clinical dermatology clerkship?
- 2) How do the questions in the assignment map to the expected objectives of the clerkship?
- 3) How do standardized assessment scores in pre-clinical dermatology correlate with standardized assessment scores in clinical dermatology clerkship?
- 4) How do scores in dermatology compare among geographically distributed sites of the same medical school?

Ethical approval will be sought to obtain access to student marks and these will be analyzed to answer the above questions. The results of this research will yield valuable information on the quality of pre-clinical teaching, student assessments, and clinical instruction at each of the three sites. Based on these pending results, the curriculum and examinations may need to be modified.

## Putative immune privilege in basal cell carcinomas

Jellena Wong<sup>2,1</sup> Blanche Lo<sup>1</sup> David Zloty<sup>1</sup> Bryce Cowan<sup>1</sup> Jerry Shapiro<sup>1</sup> Kevin McElwee<sup>1</sup>

1. Department of Dermatology & Skin Science, University of BC, Vancouver, BC; 2. Queen's University School of Medicine, Kingston, ON

**Introduction:** BCC is the most prevalent form of malignancy worldwide. Studies indicate that a third of BCCs are derived directly from the hair follicle "bulge" stem cell region. Hair follicles are known to exhibit "immune privilege." BCC growth is associated with an infiltration of inflammatory cells but they apparently fail to target and destroy BCCs. A previous study compared IP gene expression in human nodular BCC samples with non-lesional skin epithelium control tissue using real-time RT-PCR. Significant upregulation of immunoregulatory genes including IDO (1.96 fold) and TGF- $\beta$ 2 (5.43 fold) was found. Also, co-expression of IDO and keratin 17 (K17), which is a BCC marker, was detected in human BCC tissues. TGF- $\beta$ 2 is a known immunosuppressor in hair follicle immune privilege. IDO promotes T cell suppression and tolerance induction and is used as an immune subversion strategy by several types of cancer. Based on these results, it appeared that BCCs may employ IP and immunoregulatory mechanisms to avoid targeting by the host immune system.

**Methods and Results:** In this study, we detected the co-expression of K17 with TGF- $\beta$ 2 by immunohistochemistry using frozen tissue samples of human nodular BCC (n=5) as compared to non-lesional skin epithelium tissues (n=5). The tissue samples were frozen with liquid nitrogen, then cryo-sectioning was performed. Our protocol utilized an Avidin-Biotinylated enzyme complex (ABC) double-staining technique. Peroxidase with Nova Red substrate was used to stain one target, while Alkaline Phosphatase (AP) with Vector Blue substrate was used to stain the other target in the same tissue section. Double positive expression of K17 and TGF- $\beta$ 2 was observed, as well as double positive expression of K17 and IDO. Both TGF- $\beta$ 2 and IDO had stronger staining intensity in BCC cells compared to surrounding stromal cells.

**Conclusions:** BCC cells may produce and release IP gene products such as TGF- $\beta$ 2 as part of an IP mechanism that blockades inflammatory reactions and enables tumour formation.

## Topical 5% imiquimod in the treatment for lentigo maligna

Jessica G. Wong<sup>1</sup> Jack W. Toole<sup>2</sup> Alain A. Demers<sup>3</sup> Marni C. Wiseman<sup>1</sup>

1. University of Manitoba, Winnipeg, MB; 2. None, Winnipeg, MB; 3. CancerCare Manitoba, Winnipeg, MB

**Background:** Chronic exposure to ultraviolet rays puts skin at risk for developing lentigo maligna (LM). Untreated LMs may progress to lentigo maligna melanoma. Current standard treatment is surgical excision with 5-10 mm margins to prevent recurrence. However, this is cosmetically disfiguring for LMs on the face and neck. Imiquimod is an immune response modifier with anti-tumor effects that locally induces toll-like receptors and cytokine production, which destroys neoplastic melanocytes. The off-label use of topical 5% imiquimod cream has recently provided an alternative to surgery. This study reviews the Manitoba experience using imiquimod to treat LM.

**Methods:** A retrospective chart analysis was conducted on patients that initiated treatment between 2004 and 2009. Pre-treatment biopsies confirmed the diagnosis. Data collected included lesion characteristics, previous treatments, duration of treatment, number of cycles and side effects. Treatment was individualized for each patient. Post-treatment biopsies determined clearance of LM.

**Results:** Twenty-six patients were reviewed. Of these, 2 are undergoing active treatment. Twelve patients used imiquimod as primary therapy; 14 were treated after surgery failed to produce a negative margin. Four patients required 2 treatment cycles. There were 18 responders (74%) and 6 failures (5 partial responders). The relationship between success of the treatment, tumor size (mean = 1.9 cm<sup>2</sup>, range 0.38-10.9 cm<sup>2</sup>), and length of treatment (mean = 148 days, range 71-234 days) was tested using a logistic regression model with success as the dependent variable. Neither the size of the tumor (p= 0.86) nor length of treatment (p = 0.18) was related to the resolution of the LM.

**Conclusion:** Imiquimod is an effective treatment for LM that provides patients with a cosmetically favorable alternative to surgery. Additionally, it may be indicated for patients with positive margins after surgical excision. Treatment should be individualized for each patient and close post-treatment follow-up is recommended.

## Delayed extrusion of a nasal implant: an important differential diagnosis in nasal tip lesions

Jane Wu; Ronald Vender

McMaster University, Hamilton, ON

**Background:** Rhinoplasty has become an increasingly common cosmetic procedure worldwide. While Caucasians most often require nasal reduction, Asians generally undergo augmentation of the nose to achieve desirable aesthetic outcomes. Nasal augmentation surgeries can be performed with autogenic (bone or cartilage) or alloplastic implants, with silicone elastomers (Silastic) being the most commonly used. While the procedure is generally safe with low complication rates, infection and extrusion of the implant can occur.

**Case Report:** A 35-year-old Vietnamese woman presented with a four-month history of an ulcerated pearly erythematous nodule on the nasal tip. The lesion was associated with increasing pain and a bloody serous discharge, but the patient denied any history of injury, fever, or systemic symptoms. A punch biopsy was taken to rule out an ulcerated basal cell carcinoma, and tissue cultures were sent to investigate for an infectious etiology. Histopathology was most consistent with a ruptured follicular infundibular cyst, and cultures returned negative for bacteria and fungi. An X-ray of the nasal bones was also taken, which suggested the presence of a foreign body. As a result, photographs of the patient were sent to Otolaryngology for assessment, and the impression suggested was that of an extrusion of a nasal augmentation implant. Subsequent to further questioning, the patient finally revealed that she had an implant placed in the nasal dorsum approximately ten years ago. The patient was referred to Otolaryngology for surgical removal of the alloplastic implant with no complications.

**Conclusion:** Extrusion of an augmentation rhinoplasty implant can occur long after the original procedure, and clinicians should strongly consider this complication in the differential diagnosis for nasal tip lesions, especially in the Oriental population.

## DRESS syndrome with chronic cutaneous and neurocognitive sequelae

Jane Wu; Judy Wismer

McMaster University, Hamilton, ON

**Background:** Drug rash with eosinophilia and systemic symptoms (DRESS) is a severe drug hypersensitivity syndrome characterized by cutaneous eruption, eosinophilia,

and internal organ involvement. Various drugs have been implicated as causative agents for DRESS, including anti-convulsants, sulphonamides and minocycline. While most patients who develop DRESS syndrome achieve complete resolution, long-term sequelae have been reported.

**Case Report:** In June 2006, a 55-year-old female developed fever, nausea, vomiting, and a diffuse maculopapular eruption approximately two months after initiating minocycline for rosacea and one month after starting sulfasalazine for seronegative arthritis. Despite cessation of both medications and aggressive corticosteroid treatment in hospital, the patient developed haemolytic anemia and an autoimmune hepatitis with elevated liver enzymes. Laboratory findings also showed leukocytosis with eosinophilia. After two transfusions and three doses of IV IG concurrently with oral Prednisone, the patient's conditions resolved and she was discharged after a one-month stay in hospital. Over the past three years, however, the patient has presented with a recurrent violaceous maculopapular eruption over the pretibial area, with no obvious etiology and no history of new irritants or contacts. A recent biopsy showed a lympho-eosinophilic infiltrate with scattered bands, infiltrative leukocytes, and a prominent number of eosinophils, which is suggestive of a drug-induced eruption. Since the initial presentation, the patient has also reported neurocognitive concerns including a decline in memory, concentration, and executive functioning, as well as mood lability. Investigations including a head CT, brain MRI, and EEG have been unremarkable.

**Conclusion:** To our knowledge, we report the first case of a recurrent cutaneous eruption persistent for three years after the initial presentation of DRESS syndrome. The neurocognitive manifestations of our patient are also unique, as this has not been reported in the literature. Further research is necessary to understand the long-term sequelae of DRESS syndrome.

## Strain typing of *Trichophyton rubrum* isolates from onychomycosis patients failing antifungal therapy

Muhammad Zaman; Aditya K. Gupta

University of Toronto and Mediprobe Research, London, ON

**Introduction:** Antifungal treatment failure is high in cases of onychomycosis, and relapse frequently occurs following antifungal success. This study is investigating *T. rubrum* strain typing using isolates collected from patients at screening and post-treatment to determine if there are predominant strains associated with treatment failure.

**Methods/Results:** Restriction fragment length polymorphisms (RFLPs) of rDNA from *T. rubrum* isolates were used to differentiate strains. Genetic variation was analyzed by hybridization of EcoRI digested genomic DNAs with a probe amplified from the small-subunit (18S) ribosomal DNA and adjacent internal transcribed spacer regions (ITS) region. None of the RFLP types was unique to any specific patient; rather, genotypes were shared among the different patients. Patients P1, P3 and P4 showed similar genotypes of *T. rubrum* isolates collected before and after treatment, but 4 other patients (P2, P5, P6, and P7) showed different genotyping in their isolates. The small numbers of patients studied so far were not sufficient to conclude if there is any particular type of strain causing the reinfection. More isolates are available for analysis, and data continues to be collected. Future analysis will also consider MICs of the isolates to determine correlation between antifungal resistance and genotype.

**Discussion and Conclusion:** Treatment failure may result from reinfection with similar or different strains of dermatophyte, or inadequate therapy where a strain may temporarily be undetectable in the samples but re-emerge after treatment end. Studies of drug efficacy must make this distinction between environmental reacquisition of the organism after successful eradication of organisms versus recrudescence indicating inadequate initial therapy. Methods of detection of intraspecific variability are therefore crucial to assessment of the cause of reinfection in the Canadian onychomycosis population, and this study is providing data which can help to answer this vital question.

## Investigation of drug resistance in trichophyton mentagrophytes onychomycosis infection

Muhammad Zaman<sup>2</sup> Aditya K. Gupta<sup>1</sup>

1. University of Toronto and Mediprobe Research, London, ON;  
2. Mediprobe Research, London, ON

**Introduction:** Though in vitro efficacy of antifungals for onychomycosis is high, in vivo efficacy remain relatively low. There is evidence suggesting the main agents of onychomycosis, *Trichophyton* spp, acquire resistance to antifungals. Research was undertaken to identify and characterize *T. mentagrophytes* drug resistance genes.

**Methods/Results:** PCR primers identified a *Trichophyton* mentagrophytes candidate gene called multiple drug resistance gene 1 (TmMdr1), with 98% homology to *T. rubrum* MDR1 (TruMdr1) and 63-87% homology to other fungal mdr1 genes. It carries a 127 amino-acid (aa) open

reading frame (ORF) upstream of a 1205aa ORF, separated by a 45bp spacer. As TruMdr1 has a single ORF of 1331aa, it was postulated the 45bp spacer is an intron spliced out during RNA editing. Northern blots of total RNA hybridized with labelled TmMdr1 probe detected TmMdr1 RNA as a doublet of 4.5Kb full-length RNA and 4.0 Kb RNA. The difference is highly suggestive of the 127aa ORF being spliced out of the transcript, and suggests either the 127aa serves a different function in TmMdr1 relative to TruMdr1, or is processed differently in TruMdr1. TmMdr1 upregulation with ketoconazole was investigated using TmMdr1 cell lines continuously cultured in different concentrations of ketoconazole for 7 days. Genomic DNA was digested with BstEII restriction enzyme, and hybridized against TmMdr1 DIG-labelled DNA probes. The copy number of TmMdr1 increased from 2 to 20 copies per cell upon exposure to 2ug/ml ketoconazole. Further increases in ketoconazole concentrations did not further increase copy number. This suggests that cells adapted to higher ketoconazole exposure may use additional resistance methods.

**Discussion and Conclusion:** A clear understanding of the molecular mechanisms for *Trichophyton* drug resistance is critical in new drug formulation and devising effective treatment regimens. This project is adding to the knowledge of *T. mentagrophytes* drug resistance genes, and further investigations are proceeding.

# Author Index

Abouchehade, Kassem.....	A39	Brintnell, William C.....	A32
AbouShehde, Kassem.....	A9	Brown-Maher, Tracey D.....	A3
Al Saedi, Marwan.....	A54	Bruce, Suzanne.....	A40
Alavi, Afsaneh.....	A1, A12, A16	Bruecks, Andrea K.....	A9, A15
Al-Mutairi, Nawaf.....	A21	Butolavic, Ranko.....	A53
Anis, Aslam.....	A46	Camacho, Fernando.....	A46
Armstrong, Katie.....	A21	Cardin-Langlois, Etienne.....	A52
Assaad, Dalal.....	A52	Caron, Francine.....	A22
Aubut, Nicolas.....	A22	Caron, Marilyn.....	A24
Auger, Isabelle.....	A22, A24	Chan, An-Wen.....	A25
Baibergenova, Akerke T.....	A2	Chandran, Vinod.....	A44
Baker, K. A.....	A6, A30, A31, A32, A53	Chaplin, Anna.....	A3
Balbul, Alfred.....	A52	Charles, Lynde.....	A55
Bansback, Nicholas.....	A46	Chartier, Suzanne.....	A45
Baran, Robert.....	A32	Cheng, Yabin.....	A11
Barankin, Benjamin.....	A17, A40	Chetaille, Anne-Laure.....	A24
Barber, Kirk.....	A43	Clark, Christina.....	A47
Baxter, Kathy.....	A50	Colón, Luz E.....	A40
Beach, Renee.....	A22	Cooper, Elizabeth.....	A32
Beauchamp, Richard.....	A44	Coulombe, Jérôme.....	A25
Beleznay, Katie.....	A7	Cowan, Bryce.....	A58
Bélisle, Annie.....	A57	Crawford, Richard.....	A16
Bernard, Jean.....	A26	Cunningham, Bari.....	A40
Bhogal, Meetu.....	A44	Curtis, T.....	A31, A32
Binder, Carin.....	A46	Dahlke, Erin J.....	A25
Bissonnette, R.....	A17, A23, A42, A43, A49	Dahmer, Betty.....	A47
Blouin, Marie-Michèle.....	A22	Danby, Bill.....	A4, A25
Boivin, Catherine.....	A24	Davar, Sandra.....	A26
Bolduc, Chantal.....	A23	de Gannes, Gillian.....	A4
Bologna, Jean.....	A2	DeKoven, J G.....	A10
Bouffard, Danielle.....	A57	DeLeo, Vincent.....	A5
Bourcier, M.....	A29	Demers, Alain A.....	A58
Bourcier, Marc.....	A49	DesGroseilliers, Jean-Pierre.....	A10
Bourgeault, Emilie G.....	A24	Diepgen, Thomas.....	A43
Brassard, Alain.....	A3, A49	Dionne, Marie-Claude.....	A26

Donovan, Jeff C.....	A27	Hatami, Afshin.....	A55
Dover, Douglas.....	A38	Hawkins, Nicole.....	A35
Drolet, Anne-Marie.....	A19, A27	Haydey, Richard.....	A55
Dutz, Jan P.....	A18, A27, A34, A38	Hayes, Sean M.....	A35
Eapen, Libini.....	A36	Hepditch, K.....	A32
Echenberg, Donald.....	A25	Hessami, Morvarid.....	A35
Eder, Lihi.....	A44	Heughan, Caroline E.....	A36
Elliott, John F.....	A5, A12	Ho, Vincent.....	A43, A45, A47, A55
Fakharzadeh, S.....	A48	Hsu, M C.....	A23, A28, A29, A45
Finkelstein, Harvey.....	A36	Hudson, Charles P.....	A40
Finlayson, Laura.....	A50	Hulburt, Jennifer.....	A37
Fratesi, Lauren.....	A6	Hull, Peter R.....	A7, A35, A36, A39
Gagné, Claude.....	A26	Humphrey, Shannon D.....	A7, A18
Gagné, Éric.....	A22, A54	Jackson, Christine.....	A17
Gagné-Henley, Angélique.....	A55	James, William.....	A8
Gao, M.....	A20	Jog, M.....	A44
Garcia-Batres, Carlos.....	A12	Johnson, Lori A.....	A40
Gavigan, Genevieve.....	A17, A28	Jones, Emily.....	A53
Ghislain, P D.....	A48	Juurlink, David.....	A1
Gilbert, Martin.....	A19, A54, A55	Kanigsberg, Nordau.....	A28
Giroux, Lyne.....	A24	Kaplan, Allen.....	A8
Gladman, Dafna.....	A44	Karim, Safiya.....	A9
Goffe, Bernard S.....	A40	Khraishi, Majed.....	A9, A37, A39
Gordon, Kenneth.....	A11, A28, A29	Kirshen, Carly.....	A10
Gottlieb, Alice.....	A11	Korman, N.....	A23
Gottschalk, Ron.....	A40	Kossintseva, Irèn.....	A38
Goyette, Alexandra.....	A46	Koutsavlis, Athanasios T.....	A47
Gratton, David.....	A35	Kraft, John N.....	A38, A42
Grewal, Parbeer.....	A49	Krueger, Gerald.....	A11
Griffiths, Christopher E.....	A6, A28	Kunimoto, Brian.....	A34
Guenther, Lyn.....	A29, A30, A38, A43, A51	Kurian, Anil.....	A33
Guérette, Benoit.....	A47	Kurwa, Habib.....	A15, A48
Guh, Daphne.....	A46	Kuzel, Paul F.....	A38
Gulliver, Wayne P.....	A6, A17, A30, A31, A32, A42, A43, A53	Kwok, Tiffany.....	A10
Gupta, Aditya K.....	A32, A43, A59, A60	Lam, Joseph.....	A40
Haber, Richard M.....	A33	Landells, Ian.....	A9, A37, A39
Hamilton, Tatyana B.....	A34	Langley, Richard G.....	A3, A11, A23, A29, A45
Han, C.....	A29	Law, Angela.....	A39
Han, Christina.....	A34	Lebwohl, Mark.....	A40
Hanna, Dominique.....	A19, A25, A26, A27, A41, A52	Lee, Tim.....	A7

Leonardi, C.....	A28, A48	Nasseri, Eiman .....	A45
Li, Gang .....	A11	Niakosari, Firouzeh.....	A1
Li, Jun.....	A11	Nigen, Simon .....	A23
Li, Kayi.....	A40	Olbricht, Suzanne .....	A13
Li, S.....	A48	Olds, Michele.....	A11
Liang, Y .....	A20	Ortonne, J P .....	A29
Lichtenwald, Duane J.....	A36	Papp, Alexine .....	A47
Lichtenwald, Jessica M .....	A36	Papp, Kim .....	A11, A23, A45, A46, A47
Lin, Andrew.....	A50	Parsons, Laurie M.....	A13
Lipson, Jennifer .....	A41	Pasternak, Sylvia .....	A50
Liu, Shuhong .....	A9	Peddle, L .....	A30, A31
Lo, Andrea .....	A53	Peermohamed, Shaqil .....	A48
Lo, Blanche.....	A58	Pellacani, Giovanni.....	A13
Loo, Wei Jing .....	A51	Philipp, S.....	A29
Lowe, Julia.....	A1	Pirzada, Syed .....	A14
Lucena Fernandes, Carolina.....	A41	Poulin, Yves .....	A29, A43, A45, A48, A49
Lui, Harvey .....	A10, A17, A20, A42, A57	Poulin-Costello, Melanie .....	A55
Luo, S.....	A3	Powell, Julie .....	A52
Lynde, Carrie B.....	A38, A42	Prajapati, Vimal.....	A49, A50
Lynde, Charles W.....	A38, A43, A46	Pratt, Melanie.....	A6, A41
Maares, Juergen .....	A30, A49	Preston, Norman.....	A40
Maari, Catherine.....	A23	Price, Vera H.....	A27
MacDonald, Don.....	A6, A9	Prinz, J C.....	A28
Mahmood, Muhammad N.....	A38	Provost, Nathalie.....	A57
Mamelak, Adam.....	A22	Purdy, Kerri S .....	A50
Martel, Marie-Josée .....	A46	Qian, Hong .....	A46
Maynard, Bruno.....	A25, A26, A27, A41, A52	Rahman, P .....	A30, A31
McElwee, Kevin .....	A58	Reich, K.....	A28, A45
Menter, A .....	A29, A48	Rigel, Darrell S.....	A14
Metelitsa, Andrei.....	A38	Rivers, Jason .....	A7
Meymandi, Simin S .....	A12	Rizcallah, Edmond.....	A25, A26, A27
Miller, Rob A .....	A3, A44	Rodrigues, Jennifer C .....	A15, A50
Mistry, Nisha.....	A16	Rosen, Cheryl F.....	A10, A15, A44
Mitsos, Loukia .....	A52	Rosen, Nathan .....	A52
Moccia, Patrizia.....	A57	Rosoph, Les.....	A30
Mong, Jonathan .....	A9, A37	Ruben, Beth S.....	A27
Muhn, Channy Y.....	A52	Salopek, Thomas G.....	A38
Musaji, Andrei.....	A12	Samrao, Aman .....	A27
Mussani, Farheen.....	A44	Sapra, Sheetal .....	A55
Mydlarski, P. Régine .....	A9, A15, A50	Sasseville, Denis.....	A43

Sawchuk, Michael.....	A51	Tsao, Hensin.....	A3
Sawicki, Jakub.....	A15	Turmel, Stephanie .....	A26
Schenkel, B.....	A29	Valdes, Joaquin .....	A11
Setterfield, Mike D.....	A55	Van de Kerkhov, P.....	A29
Shanmugarajah, Sutha.....	A44	Veillette, Helene .....	A55
Shapero, Jonathan .....	A16	Vender, Ronald B.....	A30, A55, A56, A59
Shapiro, Jerry .....	A57, A58	Vera, Caridad .....	A57
Shear, Neil.....	A1, A17, A42, A43, A49	Vera-Kellet, Cristián.....	A27, A34
Shoimer, Ilya.....	A10, A51, A52	Verma, Geetika .....	A49
Sibbald, R Gary .....	A1	Walker, James.....	A22
Siddha, Sanjay .....	A15, A42	Walsh, Scott .....	A1, A2
Simonyi, Susan .....	A44	Wang, Jingxia .....	A36
Sirois, Fuschia.....	A57	Wang, Y.....	A20
Sivret, Sophie .....	A52	Wang, Yang .....	A20
Skappak, Christopher.....	A50	Wasel, N.....	A28, A48
Skotnicki, Sandy.....	A16	Watters, Kevin .....	A52
Sofen, H L.....	A29, A48	Wei, S .....	A20
Sowerby, Laura .....	A52	Wein, Ted .....	A44
Spano, Frank.....	A51	Weinstein, Miriam .....	A21
Stacey, Dawn.....	A17	Weiss, Jonathan S.....	A40
Stanciu, Monica.....	A26	Williams, David .....	A11
Stone , N. Craig .....	A17	Wiseman, Marni C.....	A58
Street, C.....	A31	Wismer, Judy .....	A10, A51, A59
Strober, Bruce .....	A11	Wolfe, Barat.....	A53, A57
Su, Ming-Wan .....	A19, A20	Wong, Aaron .....	A18, A57
Suzuki, Kunimasa.....	A12	Wong, Jellena.....	A58
Swiggum, Susan M.....	A17	Wong, Jessica G.....	A58
Syrotuik, Jerry .....	A55	Wu, Jane.....	A59
Szapary, P O.....	A23, A28, A29, A45	Xu, A .....	A20
Tan, Jerry.....	A17, A30, A42, A53, A57	Xu, Jinhua .....	A20
Teixeira, Henrique D .....	A46, A47	Yeilding, N .....	A28, A29, A45, A48
Telford, G.....	A53	Yu, Richard .....	A19
Thavaneswaran, Arane .....	A44	Yu, T .....	A20
Thériault, Mimi .....	A54	Zaman, Muhammad.....	A59, A60
Thérien, Geneviève.....	A55	Zérounian, Sophie.....	A19
Thestrup-Pedersen, Kristian .....	A18	Zhang, Wei .....	A46
Tibbles, L A.....	A15	Zhang, X .....	A20
Tomi, Zohair.....	A54	Zhang, Yaohua Y .....	A20
Toole, Jack .....	A43, A58	Zheng, Zhizhong .....	A20
Tran, Diane.....	A24	Zhou, Youwen.....	A19, A20
Tran, Jennifer M.....	A9, A15	Zloty, David.....	A58