

Posters

Cutaneous Metastases of Cervical Adenosquamous Carcinoma

Tarek Afifi; Raina Fumerton; Magda Martinka; Gillian de Gannes, University of British Columbia, Vancouver, BC

Introduction: Although cervical carcinoma is common, cutaneous metastasis from this tumor is rare. The reported incidence rates of skin metastasis from cervical cancer range from 0.1% to 1.3%. The major histological subtype of cervical carcinoma is squamous cell carcinoma (SCC), accounting for 75% of cases. The remainder are classified as adenocarcinoma, adenosquamous cell carcinoma, or are of unspecified histology.

Methods and Results: A 32-year-old woman with a history of recurrent cervical cancer presented with new lesions involving her abdomen and thighs. Two years prior, she had undergone total abdominal hysterectomy for recurrent adenosquamous cervical carcinoma. She had been well until 6 months ago, when she developed significant constitutional symptoms. Imaging suggested metastatic cervical cancer, which was confirmed by vaginal biopsy and needle aspirate of pelvic lymph nodes. She was treated palliatively with concurrent cisplatin and radiation therapy. One month later she presented with nodules and plaques on her abdomen and thighs. Biopsies were consistent with metastatic adenosquamous carcinoma.

Conclusion: Distant metastases occur in 10% of cervical cancer patients, usually affecting the lungs, bone, and liver. A recent summary of the literature found only 47 reported cases of skin metastasis from cervical carcinoma. It is associated with a poor prognosis. Incidence is higher in undifferentiated carcinoma (20%) and adenocarcinoma (5.8%) when compared to squamous cell carcinoma (0.9%).

To our knowledge, this is the first reported case of cutaneous metastasis from cervical carcinoma of the adenosquamous histopathologic subtype. Previous studies suggest that adenosquamous cervical carcinoma is less likely to metastasize than are other subtypes. The reasons for this are unknown but provide an opportunity for future study.

Transient Diplopia as a Consequence of Infraorbital Nerve and Field Blockade: A Report of Two Cases

Tarek Afifi; David Zloty, University of British Columbia, Vancouver, BC

Background: Local anesthesia is critical to dermatologic surgery. Common techniques include field and nerve blocks. Blocking the infraorbital nerve, a branch of the maxillary nerve that emerges through the infraorbital foramen, provides anesthesia to the lower eyelid, medial cheek, nasal ala, and upper lip.

Side effects of local anesthesia include local effects, allergic reactions and overdose. Diplopia has been described uncommonly, predominantly as a consequence of inferior alveolar nerve block-

ade for dental procedures. A single report followed nasociliary nerve blockade.

Methods/Discussion: We present two cases of diplopia following local anesthesia injection. The first case followed infraorbital nerve blockade with 0.5% lidocaine without epinephrine, prior to a cosmetic procedure. Transient diplopia developed rapidly and lasted 5 minutes. A second case was observed in a patient undergoing Mohs surgery for a basal cell carcinoma of the left forehead. Within minutes of field blockade with 0.5% lidocaine with 1:200,000 epinephrine, the patient developed diplopia, resolving within minutes.

To our knowledge, these are the first reported cases of diplopia due to local anesthetic reported in dermatologic surgery patients. They are also the first cases reported due to either infraorbital nerve or field blockade. Previously, diplopia has been reported with inferior alveolar nerve blocks. Proposed mechanisms include lateral rectus paralysis due to diffusion of anesthetic across the pterygopalatine fossa and to the abducens nerve via the inferior orbital fissure; vascular access to the abducens via the pterygoid plexus; direct diffusion of anesthetic into the orbit with access to the lateral rectus or abducens nerve; and epinephrine induced vasoconstriction of the infraorbital artery. It is possible that in our cases, anesthetic diffusion via orbital planes or the infraorbital foramen could have resulted in motor nerve paralysis, thus causing diplopia. However, paralysis of large myelinated nerves tends to develop more slowly and can last for several hours. Thus, we hypothesize the novel mechanism of diplopia occurring as a result of a direct pressure effect on the globe.

Miliary Osteomas of the Face - A case Presentation and Review

Marwan S. AlSaedi;¹ Ian Landells;²

1. King Khalid National Gaurds Hospital, Jeddah, , Saudi Arabia; 2. Memorial University of Newfoundland, St.John's, NL

Miliary osteoma cutis is a rare form of osteoma cutis, extra-skeletal bone formation within the skin. It is associated with previous acne vulgaris, and appears as multiple skin-coloured papules or nodules on the face. We report the case of a 57 year old female who presented with prolonged skin colored papules on the face, felt to be acne scarring, and review the literature for this unusual entity.

Palmoplantar Pustular Mycosis Fungoides: an Extremely Rare Presentation of MF

Marwan S. AlSaedi;¹ Zohair Tomi;²

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

Cutaneous lymphoma can be divided into primary and secondary. Cutaneous lymphomas that are restricted to the skin and show no evidence of extracutaneous involvement is considered primary cutaneous lymphoma at time of diagnosis. Secondary cutaneous lymphomas include extracutaneous involvement before or at time of diagnosis.

Abstracts

Mycosis fungoides is the most common form of primary cutaneous T-cell lymphoma (PCTCL), representing 70% of all PCTCL. The incidence is 1 in 300,000 per year and results in 200 hundred deaths annually¹. It is relatively more common in blacks, and twice more common in males than females². It is most frequent in adults in the fifth to sixth decades³. We report an 82 year old male, who previously was diagnosed with palmoplantar eczema, then palmoplantar pustular psoriasis. Histopathological findings revealed an atypical variant of mycosis fungoides. We report on a variant of mycosis fungoides, palmoplantar pustular mycosis fungoides, and discuss the clinical course and treatment of this rare variant.

References:

1. Weinstock MA, Horn JW: *Mycosis fungoides in the United States. Increasing incidence and descriptive epidemiology.* JAMA 260: 42-46, 1988.
2. Camisa C, Aulisio A. *Pustular mycosis fungoides.* Cutis 1994; 54: 202-204
3. Kim YH, Hoppe RT. *Mycosis fungoides and Sézary's syndrome.* Semin Oncol 1999; 26: 276-289.

The Use of Poly-L-Lactic Acid in the aging face.

Alfred A. Balbul; Private Practice, Westmount, QC

Poly-L-lactic acid (Sculptra) was approved in Canada, for cosmetic use since June 2006.

The presentation will include an overview of PLLA, its indications, usage and potential adverse reactions. Brief video clips will demonstrate the injection technique and follow-up care.

Finally, we will review the experience of the author in over 60 patients who completed treatments.

Hormonal Therapy in Acne Vulgaris

Alfred A. Balbul;¹ Tara Tricot;²

1. Private Practice, Westmount, QC; 2. London, UK

The rationale for hormonal therapy in women with Acne Vulgaris will be reviewed. This will be followed by retrospective analysis of results of hormonal treatments in the author's practice. A progressive algorithm for the hormonal treatment of A.V. will be proposed as a practical guide for the practitioner.

Chronic Lymphocytic Leukemia of the Skin of Face Histologically Mimicking Granuloma Annulare

Raymond Balec;¹ Marni C. Wiseman;^{1,2} James B. Johnston;^{1,2} Sate Hamza;^{1,3}

1. University of Manitoba, Winnipeg, MB; 2. CancerCare Manitoba, Winnipeg, MB; 3. Health Sciences Centre, Winnipeg, MB

A 72 year old female patient with B-cell chronic lymphocytic leukemia (B-CLL) developed erythematous infiltrated plaques on the cheeks and nose with associated nasal swelling and nasal discharge. The clinical picture was somewhat reminiscent of rosacea

to the clinicians who examined the patient. A skin biopsy from the left cheek was obtained to explore the possibility of granulomatous rosacea, sarcoidosis, or other granulomatous dermatitis. Microscopic examination of the biopsy showed a palisading necrobiotic granulomatous pattern of infiltration in the dermis, resembling granuloma annulare. Immunophenotyping by immunohistochemistry showed the lymphoid cells in the infiltrate to co-express CD20, CD23 and CD5, in keeping with a specific cutaneous infiltrate of B-CLL. This pattern of infiltration, which has occasionally been documented in the literature in the past few years, is unusual and diagnostically challenging. Clinicopathologic correlation and immunophenotyping studies are crucial for an accurate diagnosis. Specific cutaneous infiltrates should be seriously considered in the differential diagnosis of a necrobiotic granulomatous dermatitis-like histologic pattern on skin biopsies from B-CLL patients.

Everything You've Never Been Told about the Practical Management of Black Hair

Renée A. Beach; University of Ottawa, Division of Dermatology, Ottawa, ON

The hair care practices and daily hair maintenance of black women have long been an enigma to many dermatologists. This lack of familiarity can lead to frustrating encounters for dermatologists and their patients, and unresolved hair problems in dark-skinned women of African-Caribbean descent.

In addition to the morphological differences in the hair of black women, there are cultural taboos and ingrained, unrealistic beauty ideologies to which many dark-skinned women of African-Caribbean descent subscribe. These unique structural features coupled with cultural constraints likely contribute to black women having the largest female consumer cohort of personal care spending, the bulk of which is hair care. A significant remaining factor is the lack of expert knowledge possessed by dermatologists on the subject.

This presentation will outline the key differences of afro-textured hair in stark contrast to the hair structure of individuals of European and Far East Asian descent. Specific hairstyles and their maintenance will be discussed, with stratification of hairstyles by type: chemical-free, chemically-processed, cosmetically enhanced. Guidelines for proper daily maintenance, as they differ according to hairstyle, and specific reference to appropriate hair products will be presented as well.

Extramammary Paget's Disease: A Review of the Pathogenesis, Diagnosis and Treatment

Katie Belezna;¹ Michael Levesque;² Anthony Lane;³ Kenneth Suen;⁴ Sharlene Gill;²

1. Faculty of Medicine, University of British Columbia, Vancouver, BC; 2. Department of Medical Oncology, BC Cancer Agency, Vancouver, BC; 3. Medical Arts Centre and Nanaimo Regional General Hospital, Nanaimo, BC; 4. Department of Pathology, BC Cancer Agency, Vancouver, BC

There is limited information in the literature regarding metastatic extramammary Paget's disease (EMPD). This project serves to review the literature on pathogenesis, diagnosis, treatment op-

tions and outcomes. We describe a case of metastatic EMPD of the scrotum presenting as pancytopenia and back pain in a 67-year-old Asian man.

EMPD is thought to result from two different pathologic processes. The most common process is EMPD begins as a primary adenocarcinoma in situ that involves the epidermis and adnexa. Less commonly, an underlying adenocarcinoma can extend into the epidermis of the skin leading to secondary EMPD. The common immunohistochemical markers used to diagnose EMPD are simple epithelial type keratins (CK7), sweat gland antigens (CEA, GCDFP-15) and S-100 which is a marker for melanoma. Primary EMPD expresses sweat gland markers (CK7+/CK20-/GCDFP15+) which is different from secondary which has an endodermal phenotype (CK7+/CK20+/GCDFP15-) and is associated with distant carcinomas.

Various therapeutic options have been used for local EMPD. The best results and lowest rates of recurrences can be found with Mohs micrographic surgery. Topical imiquimod has been successfully used in a small number of cases. The occurrence of invasive EMPD has been disputed for a long time. Recently it has been accepted that EMPD can, with time, metastasize. Metastatic EMPD is frequently treatment resistant and has a very poor prognosis. The information on effective chemotherapy and radiotherapy is limited when treating more distant sites such as liver, lung and bone. This project examines these questions and analyzes results to help recognize and manage this potentially deadly disease.

Truncal Angiolymphoid Hyperplasia with Eosinophilia: A Case Report

Katie Belezny;¹ Youwen Zhou;² Ming-wan Su;³ Nigel Ball;⁴ Jan Dutz;²

1. Faculty of Medicine, University of British Columbia, Vancouver, BC; 2. Department of Dermatology and Skin Science, UBC, Vancouver, BC; 3. Laboratory of Predictive Medicine and Therapeutics, Department of Dermatology and Skin Science, Vancouver, BC; 4. Department of Pathology and Laboratory Medicine, UBC, Vancouver, BC

Background: Angiolymphoid hyperplasia with eosinophilia (ALHE) is a benign, but occasionally disfiguring vascular lesion with predilection for the head and neck. It is characterized by dermal and subcutaneous red-brown nodules. The histopathological hallmarks include large endothelial cells lining the vasculature, and lymphocytic and eosinophilic infiltrate. Diverse treatment options are reported with varying recurrence rates.

Case: We describe the case of a healthy 50-year-old woman who first developed a single red papule on her right chest in 2005. Over a course of two years, the original papule grew to a 12 mm crusted papulonecrotic nodule which bled intermittently. The patient also developed crops of skin coloured erythematous smooth papules 3-5 mm in diameter on the trunk and arms with associated itch. Initial biopsy done in 2005 showed features of lymphocytic vasculitis. The patient was treated for presumed small vessel vasculitis with a 6-month course of hydroxychloroquine without improvement. She had also been treated intermittently with prednisone and topical steroids before being referred to our center in 2007. On review, differential diagnosis included pyogenic granuloma-like lesions seen in cat-scratch disease or bacillary angiomatosis and metastatic

disease to the skin. Blood work showed a thrombocytosis, normal ESR, CRP, and urinalysis. ANA and anti-dsDNA antibody tests were negative. Skin biopsies were performed and showed diagnostic histologic features of ALHE.

Discussion: Ultimately, the patient had dermatologic surgery for removal of the larger lesion with a biopsy of normal tissue taken for comparison. There have been isolated reports of imiquimod cream being of benefit and this was used to treat a subset of satellite lesions. The results of treatment will be reviewed along with discussion of current theories regarding the pathogenesis of this unusual condition.

A Novel Approach for Managing Acne: Patient and Doctor Satisfaction with an Electronic Visit (E-Visit) Program

Hagit Bergman;^{1,2} Christy Williams;^{1,2} Joseph C. Kvedar;^{1,2} Alice J. Watson;^{1,2}

1. Center for Connected Health, Massachusetts General Hospital, Boston, MA, USA; 2. Harvard Medical School, Boston, MA, USA

Internet technology offers new ways to increase access to care for dermatology patients. We conducted a randomized controlled trial comparing asynchronous e-visits consisting of online surveys and digital images with conventional office care for the management of mild-moderate acne. We report timing and satisfaction of 121 subjects and 5 dermatologists.

The mean age of subjects was 27.9 (SD 8.70, range 13-60) years old; most were white (66%) and female (78%). Usual care subjects spent an average of 22min (range 15-35min) in the physician's office, of which only 4:37min was spent with the dermatologist. In addition, almost half (45%) of this group spent 30-60mins traveling to the office. In contrast, more than 90% of e-visit subjects were able to complete their e-visit, in less than 20 minutes. Dermatologists took comparable lengths of time to complete e-visits and office visits (4:42min vs. 4:08min, $p=0.552$).

Subjects in the office and e-visit groups reported similar levels of satisfaction with their care (93% vs. 89% respectively, $p=0.06$) and improvement in their acne (88% vs. 89%, $p=0.93$). Of the e-visit patients, 91% would consider using e-visits to receive acne care in the future and 75% believed that the dermatologist could assess their acne using an e-visit system as well as they could have in person. Dermatologists' satisfaction with the improvement in their patients' acne was similar in both office and e-visit groups (8.88 vs. 8.29 on a 10-point scale, $p=0.073$). In 91% of cases, dermatologists were satisfied with their ability to assess acne using digital images.

E-visits appear to be well-received by patients and physicians. Patients benefit from considerable time savings when using this method of care delivery. We anticipate increased uptake of the e-visit platform as dermatologists seek efficient and effective ways to conduct follow-up visits for non-urgent conditions.

Predicting Harmful Sun Behavior: Results from a National Survey

Hagit Bergman; April Armstrong; Joseph C. Kvedar; Alice Watson; Center for Connected Health, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA

Skin cancer is the most common form of cancer in North America, with over 1 million new cases diagnosed each year. Public health efforts to promote skin cancer awareness and prevention have not been uniformly successful. The objective of this study is to identify factors that predict harmful sun behavior among adults.

This is a cross-sectional study that examines 2992 adults aged 20-59 years in the 2003-2004 NHANES database. Participants were dichotomized into Protective and Harmful groups based on self-reported behaviors. Harmful sun behavior was defined as not engaging in any of the three Sun Protective Behaviors (SPBs): wearing sun-protective clothing; applying sunscreen; or seeking shade when in the sun for more than 1hr. A logistic regression model was constructed to determine the predictors of harmful sun behavior.

The mean age of the participants was 37.9 (SD 11.1) years old. Fifty-four percent of adults were considered to have harmful sun behavior. The multivariate adjusted analysis indicated that harmful behavior was associated with age ≤ 30 yrs (OR=1.3, 95%CI 1.1,1.7); male gender (OR=2.3, 95%CI 1.9, 2.6); and race. Whites were more likely than both Hispanics (OR=2.3, 95%CI 1.4, 3.5) and Blacks (OR=1.8, 95%CI 1.1, 3.0) to exhibit harmful behavior. In particular, white males with skin type 3 were more likely to exhibit harmful sun behavior than those with skin types 1, 2 and 4 (OR=2.4, 95%CI 2.1, 2.9). Of interest, these males were also most likely to report sunburns over the last year compared to those with other skin types (OR=2.8, 95%CI 2.3, 3.3).

The high incidence of harmful sun behaviors, and self-reported sunburns, among the young, white male population, in particular those with skin type 3, suggests that additional efforts are needed to raise awareness in this at-risk group.

Mucopolysaccharidoses: a case of Hurler syndrome

Janie Bertrand;¹ Marie-lise Melançon;² Bernard Lemieux;³ Dominique Hanna;¹

1. CHUS, Division of Dermatology, Department of Medicine, Sherbrooke University, Sherbrooke, QC; 2. Faculty of Medicine, Laval University, Québec, QC; 3. CHUS, Department of Genetics, Sherbrooke University, Sherbrooke, QC

Introduction: Mucopolysaccharidoses are a heterogeneous group of disorders caused by a deficiency in lysosomal enzymes responsible for the breakdown of mucopolysaccharides. One of them, Hurler syndrome, is a rare autosomal recessive disease caused by a deficiency in alpha-L-iduronidase.

Methods: We describe the case of a 10 year-old female with Hurler syndrome who presented various typical manifestations of the disease as well as a recurrent chest eruption and painful nodules on both ankles. She had had a bone marrow transplant at 13 months and enzyme replacement therapy (ERT) was started at seven years of age.

Results: An initial diagnosis of fixed-drug eruption secondary to ERT was made. Systemic symptoms then appeared during the infusion and positive iduronidase-specific IgE antibody were found but skin tests were negative. Treatment was discontinued but the chest eruption recurred. Deep granuloma annulare of the ankles were confirmed by biopsy

Conclusion: Hurler syndrome is a rare debilitating metabolic disease for which ERT is now available. Patients developing iduronidase-specific IgE antibodies usually have positive skin tests. Our patient is a unique case of Hurler disease with an atypical immunologic reaction to ERT, a chest eruption of unknown etiology and deep granuloma annulare.

Alefacept use in Clinical Practice: the A.W.A.R.E. Program

Robert Bissonnette;¹ Ian Landells;² Gordon Searles;³ Neil Shear⁴

1. Innovaderm Research Inc., Montreal, QC; 2. Nexus Clinical Research, St-Johns, NL; 3. University of Alberta, Edmonton, AB; 4. University of Toronto, Toronto, ON

Introduction: A.W.A.R.E. (Amevive Wisdom Acquired from Real world Evidence) is an ongoing phase IV clinical study for patients with psoriasis treated with alefacept. The objectives are to develop a national database to support best practice and optimize the care of patients receiving alefacept, generate hypotheses for future clinical research, and gain an understanding of how alefacept is used in a routine clinical practice setting within Canada.

Methods: A total of 37 Canadian centers are participating in this clinical study. Eligible patients must have a psoriasis diagnosis, provide informed consent, receive an alefacept prescription, and agree to be followed for at least 52 weeks. Data recorded at each visit include body surface area (BSA) involvement with psoriasis, alefacept dosing and time to re-treatment, physician global psoriasis response, patient global response, and concomitant psoriasis therapies. Serious adverse events are collected.

Results and Conclusions: As of July 20, 2007, baseline data are available for 362 patients enrolled in this study. Approximately 97% of patients had chronic plaque psoriasis. Mean age at enrolment was 47 years and 80% of patients had at least 10% BSA involvement with psoriasis at the time alefacept was initiated. Inadequate response to previous therapy (78%) and motivation to try new options (53%) were among the most frequent reasons to initiate alefacept. The initial treatment strategy in most patients (58%) was to combine their current therapy with alefacept. In this national psoriasis study, alefacept has been most frequently initiated in subjects with greater than 10% BSA involvement and who had an inadequate response to other treatments.

A Double-blind Study of Tolerance and Efficacy of a New Urea Containing Moisturizer in Patients with Atopic Dermatitis

Robert Bissonnette;¹ Catherine Maari;¹ Nathalie Provost;¹ Chantal Bolduc;¹ Simon Nigen;¹ André Rougier;² Sophie Seite;²

1. Innovaderm Research Inc., Montreal, QC; 2. LaRoche-Posay Laboratoire Pharmaceutique, Asnières, France

Introduction: Atopic dermatitis (AD) is one of the most frequent skin diseases. Treatments available for AD include moisturizers, topical corticosteroids and topical immunomodulators. This study compared the tolerability and efficacy of a new 5% urea moisturizer (Iso-Urea, LaRochePosay Laboratories) to a 10% urea lotion in patients with active AD.

Methods: One hundred patients with mild to moderate AD were randomized (1:1) to receive either the 5% urea moisturizer or the 10% urea lotion. Patients applied study products twice a day for 42 days. Efficacy and tolerance were evaluated by a blind assessor at Day 42 using the SCORAD, an overall tolerance scale and by collecting adverse events. Patients also evaluated the study products using cosmetic acceptability and quality of life questionnaires.

Results: The 5% urea moisturizer and the 10% urea lotion decreased SCORAD by 19.8% and 19.2%, respectively ($p < 0.001$ as compared to baseline). The difference between the two treatments was not statistically significant ($p = 0.362$). Both study products were well tolerated by patients with average tolerability scores between very good and good (no statistically significant difference between products ($p = 0.446$)). Evaluation of cosmetic acceptability showed that patients significantly preferred the 5% urea moisturizer over the 10% urea lotion ($p = 0.001$). There was also a trend towards a higher beneficial effect on quality of life of the 5% urea moisturizer as compared to the 10% urea lotion ($p = 0.079$).

Conclusions: This study suggests that both the 5% urea moisturizer and the 10% urea lotion are very well tolerated and can improve mild to moderate AD. The cosmetic acceptability of Iso-urea was significantly superior to the 10% urea lotion.

Influence of Quantity of Sunscreen Applied on the Ability of Two Sunscreens to Protect Against UV-Induced Polymorphus Light Eruption

Robert Bissonnette; Simon Nigen; Chantal Bolduc; Innovaderm Research Inc., Montreal, QC

Introduction: Polymorphous light eruption (PLE) is a frequent photodermatosis of fair skin individuals. UVA radiation (320-400nm) is the prime causative agent in PLE and studies have shown that sunscreens offering high UVA and UVB protection can prevent PLE. The amount of sunscreen applied has an influence on the level of UVA and UVB protection and is usually determined using $2\text{mg}/\text{cm}^2$. The aim of the current study is to determine if the quantity of sunscreen applied has also an effect on prevention of UV-induced PLE. Two sunscreens will be studied: Ombrelle SPF45 and Coppertone SPF45.

Method: A total of 15 patients with a typical history of PLE on thorax will be included in the study. Sunscreens will be applied on four areas on the thorax. Each sunscreen will be applied at two different concentrations: 1 and $2\text{mg}/\text{cm}^2$. The treated areas will be exposed daily to the following fluences from a Metal Halide lamp until a PLE reaction is detected: 30, 35, 35, 40 and $45\text{J}/\text{cm}^2$ ($30\text{J}/\text{cm}^2$ for day 1 up to $45\text{J}/\text{cm}^2$ for day 5). Patients will be evaluated five hours after exposure for papules, erythema, oedema and vesicles using a scale of 0 to 3. The presence of a score of at least 1 for both papules and erythema will be needed on the exposed area to consider that PLE was triggered.

Results: The number of patients who had a UV-induced PLE reaction will be compared for the two different sunscreens and the different concentrations.

Conclusions: Patients often use less sunscreen per cm^2 than what is used to determine SPF and UVA protection factors. This study will provide information on the relation between the quantity of sunscreen applied by unit area and its efficacy to protect against PLE.

A Multi-Site, Randomized, Cross-Over, Clinical Trial of a Two-Layer And a Four-Layer Compression Bandage System in the Treatment of Venous Leg Ulcers

Alain Brassard; University of Alberta, Edmonton, AB

A multi-site, randomized, cross-over, clinical trial of a two-layer and a four-layer compression bandage system in the treatment of venous leg ulcers

Venous Leg Ulcers remain a challenge to the medical community. Multi-layer compression bandage therapy is the mainstay of treatment. However, these bandages are bulky, uncomfortable, and bunch up as the layers slide past each other. While being highly effective, there is often a low level of concordance with these bandages. The objective of this study was to clinically compare a new two-layer system (Coban™ 2-Layer Compression System) to a traditional four-layer system (Profore™ multi-layer compression bandage system).

Methods: This was an eight-week, ten-center, randomized, cross-over, open-label, clinical trial. Participants ($n = 81$) were randomized to one of the two compression systems and the same foam dressing (Tegaderm™ Foam Dressing). All other ulcer treatments were per standard procedure at each location. The primary endpoint was bandage slippage measured at each dressing change. Secondary endpoints included wound healing, Health Related Quality of Life (HRQoL), and patient preference.

Results: Mean slippage estimated from a mixed ANOVA model was 2.48 cm and 4.17 cm for the two- and four-layer systems, respectively ($p < 0.0001$). There was no significant difference in wound healing. During the pre-crossover period, HRQoL Physical Symptoms and Daily Living Scores improved significantly more with the two-layer system than with the four-layer system ($p = 0.046$). Patients had a strong preference for the two-layer system (72%) vs. the four-layer system (22%), with 6% having no preference.

Conclusions: There was significantly less bandage slippage with the two-layer system compared to the four-layer system. While less bandage slippage did not impact wound healing, there was indication that it may have influenced patient preference in favor of the two-layer system and potentially impacted patients' HRQoL.

The Treatment of Chronic Wounds with Benzoyl Peroxide 20% Lotion: A Case Series

Tracey D. Brown-Maher;¹ Margo Cashin;² Barbara Moyst;² David Jewer;²

1. Private Practice, St. John's, NL; 2. Eastern Health, St. John's, NL

Goals and Objectives: Benzoyl peroxide has fallen out of favor as a chronic wound treatment. We demonstrate the efficacy of treating chronic, resistant wounds with benzoyl peroxide, with minimal risk and cost.

Purpose: Our multidisciplinary wound care clinic faces multiple types of ulcers with different therapeutic challenges. Benzoyl peroxide was a simple, inexpensive approach for these ulcers.

Methods: Benzoyl peroxide 20% lotion was applied to chronic wounds that had failed other therapies from one to three times per day.

Results: A 38 year-old female with chronic renal failure had a left below knee amputation for recurrent diabetic foot ulcers. She developed a 6x3cm ulcer at the stump site. Benzoyl peroxide packs bid were initiated for one month. The wound improved to two small openings, 3mm each with a depth of 1.5cm and 2.5cm respectively.

A 78 year-old lady had a traumatic ulcer with hematoma on the left lower leg, 3x2.5cm with undermining of 4.5cm at 12 o'clock, 0.5cm at 3o'clock, 2cm at 6o'clock and 1 cm at nine o'clock. After three weeks of benzoyl peroxide packs bid, it was 3x2cm and 2mm deep. Two months later it was healed.

A 42 year-old male diabetic paraplegic presented with a seven year history of a left heel pressure ulcer that failed hydrocolloids. The ulcer was 4.75x3cm. After two months of daily benzoyl peroxide dressings, it was healed.

A 75 year-old female with diabetes, ankylosing spondylitis, right above knee amputation, and methacillin-resistant staphylococcus aureus (MRSA) presented with a two month history of a trochanteric ulcer 3x2.25cm, with 1cm undermining at 11o'clock, green drainage and fat necrosis. Benzoyl peroxide dressings were started tid. One month later the ulcer decreased to 1.5x2.0 cm, 2cm deep.

Discussion/Conclusion: Our case series illustrates that benzoyl peroxide is efficacious for many types of wounds when conventional treatments fail.

Diabetic Foot Osteomyelitis caused by Coagulase Negative Staphylococcus

Tracey D. Brown-Maher;¹ Margo Cashin;² Barbara Moyst;²

1. Private Practice, St. John's, NL; 2. Eastern Health, St. John's, NL

Goals and Objectives: Coagulase negative staphylococcus (CNS) is often regarded as a contaminant and not considered a true pathogen. It has infrequently been reported as a cause of osteomyelitis, but in diabetic patients may represent up to 40% of cases. We present a case of CNS osteomyelitis in a diabetic foot that developed after inadequate treatment.

Purpose: To highlight the importance of treatment of Coagulase-negative Staphylococci infections, especially in diabetic wounds.

Methods: A 64 year-old diabetic male presented with left foot ulcerations of six weeks duration. He had previously been treated with intravenous antibiotics for three weeks. Previous cultures grew coagulase negative staphylococcus, sensitive only to septrin and vancomycin. Ulcers were located on the inferior medial malleolus (0.2x0.2cm, 0.5cm depth), mid-foot (0.8x1.2cm), and the first metatarsal head (0.2x0.2cm). The bases had yellow slough, and the plantar foot was erythematous and warm, suggesting osteomyelitis. The ulcers had been dressed with Iodosorb paste only, and this was changed to Aquacel plus a nonadhesive foam. The patient was treated with intravenous Vancomycin 1g bid for two weeks for suspected CNS osteomyelitis.

Results: Five days later the erythema was considerably reduced, and two of the three ulcers were practically closed. Bone and gallium scans confirmed osteomyelitis of the great toe, with cellulitis of the foot. On follow-up one week later the erythema was resolved; the midfoot ulcer was 0.5x1cm. The patient was switched to oral antibiotics (Ciprofloxacin, Flagyl) for a further six weeks and placed in a pressure offloading boot. The wound was closed on two month follow-up.

Discussion/Conclusion: This case illustrates that the presence of CNS in a wound may be significant and should be treated accordingly. This is especially true in diabetic wounds which also have a higher incidence of methicillin-resistant CNS. These wounds need to be treated aggressively to lower risk of osteomyelitis and future amputation.

Acquired Zinc Deficiency in a Breast-Fed Premature Infant: A Case Report

Marilyn Caron;¹ Jean Bernard;² Isabelle Auger;² Pascale Gervais;³

1. CHUQ-Hôpital Hôtel-Dieu de Québec, Québec, QC; 2. Pediatric Dermatology/CHUQ-Hôpital du CHUL, Québec, QC; 3. Departement of pediatrics/CHUQ-Hôpital du CHUL, Québec, QC

Introduction: Zinc is an essential element for the formation and maintenance of all tissues, including the skin. Inherited zinc deficiency, also called acrodermatitis enteropathica, is a rare genetic disorder affecting 1/500 000 children. On the other hand, acquired zinc deficiency is much more frequent, especially among premature infants. Both of these entities are clinically indistinguishable

and are characterized by skin lesions distributed predominantly in a periorificial and acral pattern.

Method: We describe the case of a premature baby girl, breast-fed exclusively, and admitted at the age of 3 months with eczematous pink scaly plaques over her face, limbs and anogenital areas. These lesions had appeared gradually in the last month. She was initially treated for surinfected intertrigo and seborrheic dermatitis and was investigated for allergies, immune diseases and cystic fibrosis. Plasmatic zinc levels were also verified during her hospitalization.

Results: All the investigations were normal except a serum zinc level diminished at 5 $\mu\text{mol/L}$. A diagnosis of acrodermatitis enteropathica secondary to a zinc deficiency was established. A replacement therapy with elemental zinc was started and the patient showed a spectacular response after 48 hours and a complete remission within a week. The mother's plasmatic zinc level was also verified and was normal. Unfortunately, the zinc level in the mother's milk was not possible to obtain, thus, a defect in mammary zinc secretion could not be eliminated.

Conclusion: Risk factors for dietary zinc deficiency include: vegetarians, alcoholics, the malnourished and premature infants. Acrodermatitis enteropathica can only be accurately distinguished from zinc deficiency after attempts to remove zinc supplementation have failed. Therefore, patients with AE must remain on zinc supplementation for life. In our case, since prematurity is a risk factor, we expect that there will be no relapse after zinc therapy is ended. The patient is expected to be treated with 1 mg/kg of elemental zinc until solid diet.

Unusual Skin Morphology in a Patient With Multicentric Reticulohistiocytosis

Melody Cheung-Lee,¹ Alain Brassard,¹ Kenneth Alanen,^{1,2}

1. University of Alberta, Edmonton, AB; 2. Private Practice, Edmonton, AB

Background: Multicentric reticulohistiocytosis is a rare histiocytic proliferative disorder of unknown cause affecting the skin, joints, and mucous membranes. Most notably, this condition can result in a very severe and mutilating arthropathy and a certain percentage of affected individuals have associated internal malignancy. The classical skin findings consist of yellow, brown, or red firm papules and nodules typically located on acral sites such as the extensor surfaces of hands and forearms, scalp, face, and ears. Coral bead-like papules may occur along the proximal nail folds. One-half of patients may have oral, pharyngeal, and nasal mucosal papules and nodules. These lesions have very characteristic pathology consisting of infiltration by mononucleated and multinucleated histiocytes with eosinophilic, ground-glass cytoplasm. Ultimately, the disease self-remits but patients may be left with significant disability.

Objective: To report a patient with an established diagnosis of multicentric reticulohistiocytosis who presented with an unusual skin finding which has not been previously described in this condition.

Methods: We present the case of a forty-five year-old Caucasian male with an established diagnosis of multicentric reticulohisto-

cytosis. He initially presented to us for assessment of his overall cutaneous findings. He had characteristic skin, joint, and mucous membrane findings. In addition, he also had an unusual extensive erythematous confluent plaque located on the photodistributed area of the anterior neck and upper chest. This had been the initial presenting skin finding and has progressively expanded since then. Although his other mucocutaneous findings have either regressed or stabilized over time, this plaque persists and continues to expand.

Results: Subsequent biopsy showed diagnostic features of reticulohistiocytic granuloma in the dermis consisting of numerous multinucleated giant cells with intensely eosinophilic cytoplasm rendering a ground-glass appearance. Eosinophils, lymphocytes, and histiocytes were scattered throughout.

Conclusion: Multicentric reticulohistiocytosis is a condition with very characteristic skin findings consisting typically of papules and nodules in distinctive locations. However, our case demonstrates that it is possible for plaques of reticulohistiocytosis to form in this condition.

An American Case of Acrodermatite Chronica Atrophicans

Angélique Gagné-Henley; Dominique Hanna; Bruno Maynard, Centre hospitalier universitaire de Sherbrooke CHUS, Sherbrooke, QC

Introduction: Lyme disease is due to infection with a spirochete, *Borrelia*, and is transmitted by Ixodes ticks. *Borrelia* species in North America (*Borrelia burgdorferi sensu stricto*) are different from the European species (*B. afzelii*, *B. garinii*), which explains a different presentation of the disease. Acrodermatitis chronica atrophicans is well described following infection by the European species of *Borrelia* (almost always *B. afzelii*) but is extremely rare in North America. It appears months to years after the infection, as a slowly progressive bluish-red patch that becomes atrophic.

Methods: We describe the case of a 36-year-old woman with a several year history of lesions on her knees and ankles. The lesions were asymptomatic, but more prominent since her pregnancy. She spent her summers, as a child, on the coasts of New England.

Results: Complete blood work was normal. The skin biopsy was compatible with acrodermatitis chronica atrophicans. Finally, serology by ELISA and Western blot were positive for *Borrelia burgdorferi* and confirmed Lyme disease.

Treatment: The treatment is beneficial for all stages of disease and if treated early, it is completely curable. Our patient received a sixty day treatment of Amoxicicyllin 500 mg per os QID. Surprisingly, with this treatment, the lesions healed, leaving a discrete atrophic patch.

Conclusion: Acrodermatitis chronica atrophicans caused by American species of *Borrelia*, although very rare, has been described in a few case reports. We present a patient with chronic lesions, skin biopsy and serology compatible with Acrodermatitis chronica atrophicans.

Efalizumab's Effectiveness in Treating Scalp Plaque Psoriasis Lesions: Interim Subanalysis of the Canadian RESTORE Study Data

Martin Gilbert;¹ Kirk Barber;²

1. Hôpital de L'Enfant Jésus; Centre de Dermatologie Maizerets, Québec City, QC; 2. Kirk Barber Research, Calgary, AB

Introduction: Psoriasis of the scalp can be resistant to treatment and in severe cases can lead to hair loss. Efalizumab, a humanized anti-CD11a antibody that modulates the immune response by limiting cutaneous T-cell activation, is approved in Canada for use in adults with chronic moderate-to-severe plaque psoriasis who are candidates for systemic therapy or phototherapy. In a recent prospective phase 3 study in Latin America, efalizumab achieved at least 75% improvement in Psoriasis Scalp Severity Index (PSSI) score in 52% of patients with scalp psoriasis. A four-year phase IV study, the Raptiva Evaluation of Safety and Treatment Optimization Registry (RESTORE), is being conducted in Canada to confirm the long-term efficacy and safety of efalizumab. We will report the efficacy and safety of efalizumab in patients with scalp psoriasis enrolled in RESTORE over the initial year.

Methods: Adults (18 years and older) affected by chronic plaque psoriasis with or without scalp involvement were eligible for inclusion. Patients received a weekly subcutaneous dose of efalizumab (0.7 mg/kg at Day 0; thereafter, 1.0mg/kg). For patients with scalp psoriasis, efficacy was determined by the proportion of patients receiving efalizumab who achieved or maintained a Physician's Global Assessment (PGA) score of "excellent" or "cleared" at the end of the study and also by changes in the PSSI over time. For safety, the primary endpoints were the incidence and severity of treatment-emergent adverse events.

Results: Interim first-year data showing the effectiveness of efalizumab for scalp psoriasis in RESTORE will be presented, as determined by the proportion attaining at least a 50% improvement in the median PSSI score.

Conclusions: Efalizumab was shown to be effective for scalp psoriasis in a recent prospective multicentre trial in Latin America. Canadian data from the RESTORE study will be presented to supplement these findings.

Comorbidity And Overall Safety Data from the Canadian RESTORE Study: Interim Analysis

Wayne P. Gulliver;^{1,2} Vincent C. Ho;³ Richard G. Langley;^{4,5} Kim A. Papp;^{6,7} Yves Poulin;⁸ Neil H. Shear;⁹ Ronald B. Vender;¹⁰

1. Memorial University of Newfoundland, St. John's, NL; 2. NewLab Clinical Research Inc., St. John's, NL; 3. University of British Columbia, Vancouver, BC; 4. Dalhousie University, Halifax, NS; 5. Queen Elizabeth II Health Science Centre, Halifax, NS; 6. Probit Medical Research Inc., and K Papp Clinical Research Inc., Waterloo, ON; 7. University of Western Ontario, Waterloo, ON; 8. Université Laval and Centre Dermatologique, Québec City, QC; 9. University of Toronto and Sunnybrook Health Sciences Centre, Toronto, ON; 10. Dermatrials Research, Hamilton, ON

Introduction: Chronic plaque psoriasis reduces patients' quality of life in part because it is associated with various extra-cutaneous diseases (cardiovascular, psychological, and endocrine). Efalizumab, one of several biologic agents approved for psoriasis, directly modulates the immune response underlying psoriasis and could offer a safe alternative to classical systemic therapies, which are limited by safety considerations and/or insufficient efficacy. Of the biologic therapies, efalizumab has the longest safety record from clinical trials of psoriasis treatment (up to 3 years). Here, we discuss an interim analysis of the comorbidity and safety data from the Raptiva Evaluation of Safety and Treatment Optimization Registry (RESTORE), a registry of Canadian patients on treatment for plaque psoriasis with open-labeled efalizumab.

Methods: RESTORE will observe 900 adult patients with plaque psoriasis across Canada for up to 4 years and help address the long-term safety profile of efalizumab. RESTORE will be analyzed to identify possible risk factors for adverse events (AEs) and serious adverse events (SAEs), including pre-specified comorbid conditions and concomitant medications.

Results: Observation of patients who initiate or continue efalizumab treatment started in May 2006. To date, efalizumab appears to be well-tolerated. Baseline data indicated that the comorbidities with the highest prevalence were hypertension, depression, diabetes and hypothyroidism. Data will be presented on the safety profile over the first year of RESTORE and on possible correlation between comorbidities and AEs.

Conclusions: RESTORE is a 4-year registry to track and observe patients initiating or continuing efalizumab in Canada. Data from RESTORE will address the long-term safety of efalizumab and provide additional data on the significance of comorbidities and concomitant medications in management of plaque psoriasis.

The Use of Ciclopirox Nail Lacquer in Special Onychomycosis Populations

Aditya K. Gupta; Mediprobe Research Inc., London, ON

There are many onychomycosis populations where oral antifungal therapy may not be the best treatment option. In these populations, ciclopirox 8% nail lacquer may be considered as a method to reduce potential risk and cost of antifungal therapy. It may not be practical or cost-effective to expose patients with few infected nails (mild to moderate infection) to a course of oral antifungal

therapy. Ciclopirox nail lacquer can target these infected nails efficiently with minimal to no risk. Where re-treatment is required for relapsed infection, re-infection, or incomplete cure of initial infection following oral therapy, ciclopirox lacquer can be used as rescue therapy instead of additional oral therapy. No oral antifungal has been approved for use in non-dermatophyte mold onychomycosis. Ciclopirox nail lacquer may provide comparable efficacy to oral therapy for these infections. Ciclopirox however is less costly with fewer potential risks for these tough-to-treat infections. No medications have been approved for pediatric onychomycosis. Oral antifungals are used sparingly in children to minimize potential risks. Use of ciclopirox lacquer in healthy children may provide a high potential for cure with little risk, as nail infections in children are typically more easily cured than those in adults. Similarly, fingernail infections in both adults and children are more easily cured than toenails, and may benefit from the use of ciclopirox lacquer.

Pharmacoeconomic Assessment of Ciclopirox Topical Solution, 8%, Oral Terbinafine and Oral Itraconazole for Onychomycosis

Aditya K. Gupta, Mediprobe Research Inc., London, ON

A pharmacoeconomic analysis was performed for treatment of onychomycosis in Canada. Drug therapies available in Canada include continuous oral terbinafine, oral pulse itraconazole, and topical ciclopirox 8% nail lacquer. Medical costs surveyed included: consult visit cost, return visit cost, mycology testing, liver function testing and complete blood count analysis. Manufacturer's costs were used to calculate representative drug acquisition costs. Using the pharmacoeconomic model with 3 1-year treatment phases, where failures or relapses were re-treated with the primary drug, ciclopirox nail lacquer had the lowest expected cost per patient (\$601.52, vs \$746.72 and \$983.42 for terbinafine and itraconazole, respectively). The main analysis assumed that two bottles of ciclopirox were required per treatment. Cost per mycological cure where 3 bottles of ciclopirox exceeded continuous terbinafine, but remained lower than pulse itraconazole. A 12-gram format of ciclopirox is being produced to provide considerable savings compared to two 6-gram bottles currently available. Compared to the 12-gram format, the incremental cost effectiveness based on cost per mycological cure using two 6-gram bottles of ciclopirox is increased by a factor of 1.35 (\$551.10 versus \$741.29). Comparing the 12-gram bottle to a typical course of oral terbinafine or oral itraconazole, the incremental cost increases by factors of 1.35 and 1.78, respectively (\$551.10 versus \$746.72 and \$983.42, respectively). The 12-gram ciclopirox bottle provides considerably lower expected costs per patient than using two 6-gram ciclopirox bottles, particularly where 5 or fewer toenails are involved with mild to moderate onychomycosis. A variety of relapse rates were tested, and ciclopirox using 2 or fewer bottles remained more cost-effective.

The Use of a Simple Algorithm for the Treatment of Onychomycosis

Aditya K. Gupta, Mediprobe Research Inc., London, ON

Onychomycosis is a chronic, progressive infection that presents a continual challenge to clinicians; relapses following treatment are common. As few new antifungal therapies are being produced, combinations of approved therapies are being tested as alternatives to the standard monotherapy regimens. The potential treatment combinations are as varied as the clinical presentations of onychomycosis. Standard treatments include oral terbinafine, oral itraconazole, topical ciclopirox nail lacquer, mechanical or chemical debridement, and partial nail avulsion. The risk/benefit ratio of orals versus topicals needs to be considered for each presentation. Individualized therapy is necessary and approach is based on severity. In an effort to provide guidance to physicians about the appropriate use of the available treatment options for onychomycosis, a simple algorithm has been developed for onychomycosis treatment. The primary consideration in deciding upon treatment modality is determining the severity of disease. For mild to moderate distal and lateral subungual dermatophyte onychomycosis (up to 75% of nail plate involved), topical treatment may be considered, though oral antifungal therapy remains popular. More severe infections will typically require oral therapy, and may also require combinations of therapies for adequate resolution of infection. Dual or triple therapy needs to be considered on a case-by-case basis.

Cutaneous Manifestations of Amyloidosis

Richard M. Haber, University of Calgary, Calgary, AB

This report will describe cutaneous manifestations of amyloidosis.

Two cases of systemic amyloidosis (one associated with multiple myeloma and one idiopathic) that both presented with cutaneous lesions will be shown and discussed. As well, I will review the clinical features and treatment of cutaneous amyloidoses including nodular, lichen and macular forms of this unusual deposition disease.

Reducing Pain and Enhancing Effect of Local Anaesthetics in Cutaneous Surgical Procedures

Danielle Hamilton,¹ Timothy Best,^{1,2} Lyne Giroux,³

1. Northern Ontario School of Medicine, Sudbury, ON; 2. Sault Area Hospital, Sault Ste. Marie, ON; 3. Private Practice, Sudbury, ON

Introduction: Reducing pain from local anaesthetic (LA) injections and enhancing local anaesthetic effect are desirable clinical goals in dermatologic surgery. Buffering LA solutions with sodium bicarbonate (NaHCO_3) to increase pH has thus been suggested. The aims of this laboratory investigation were: (1) to determine the appropriate volume of 8.4% NaHCO_3 required to increase the pH of various lidocaine and bupivacaine solutions, without macroscopic precipitation; and (2) to identify which LA solutions might best be buffered clinically to enhance LA effect.

Methods: 8.4% NaHCO₃ was mixed with 10 different LA solutions of lidocaine and bupivacaine, both with and without epinephrine, either added commercially or at time of measure. Solution pH was recorded pre- and post-alkalinization, with precipitation points noted. Recommended ratios by volume of anaesthetic to buffer for each mixture to achieve near neutral pH were calculated. Relative increases of non-ionized fraction from buffering were determined using Henderson-Hasselbalch calculations, with higher non-ionized fractions predicting enhanced LA effect.

Results: LA to NaHCO₃ volume ratios required to increase the pH of LA solutions without precipitation ranged from 9:1 to 500:1. LA's with commercially added epinephrine have lower initial pH, and when buffered, have highest relative increases in non-ionized fraction (ranges 10² - 10³). Bupivacaine solutions (+/- epinephrine), when buffered, have higher increases in non-ionized fractions than lidocaine locals, except for lidocaine with commercially added epinephrine. Plain lidocaine solutions and lidocaine solution with freshly added epinephrine have the lowest non-ionized fraction increase after buffering.

Conclusions: This laboratory study provides a guide for clinicians considering buffering LA's to maximize active non-ionized fraction, which theoretically shortens onset of anaesthesia, contributing to reduced infiltration pain. We recommend that buffering be used for locals that are initially most acidic, that is, the commercially prepared solutions of bupivacaine and lidocaine with epinephrine.

Teledermatology: A Prospective, Multicentre Study to Compare the Efficiency and Diagnostic Correlation Between Conventional Face-To-Face Skin Consultation Versus Store-And-Forward Telemedicine for Dermatology

C. N. Hawkins;¹ Stewart Adams;² Gilles Lauzon;³ Kenneth W. Alanen;⁴ Jaggi Rao;³

1. Queen's University, Kingston, ON; 2. Private Practice, Calgary, AB; 3. University of Alberta, Edmonton, AB; 4. Private Practice, Edmonton, AB

Objectives: To compare the diagnosis between face-to-face skin consultation versus consultations mediated via a secure and confidential, web-based, SF teledermatology system. To compare the efficiency of the conventional dermatology consultation process to that of SF teledermatology.

Methods: 128 subjects were recruited without bias over one week from a private dermatology centre. Subjects were all newly-referred patients. Digital images were taken to document the chief complaint and uploaded to the teledermatology system along with the exact history provided in the referral. Each subject was then seen by the consultant dermatologist. Via teledermatology, each subject was later assessed by three independent, board-certified dermatologists, who provided their own preferred diagnosis and up to two differential diagnoses. The wait-time for each subject to be seen face-to-face was determined. The total time to prepare a teledermatology request was recorded, as was the total wait-time to be seen by each teledermatologist. Subjects completed a survey to document their experience.

Results: The average diagnostic agreement between the preferred diagnosis of the consultant dermatologist and the teledermatologists was 78%. This agreement increased to 89% when differential diagnoses were considered (CI=95%). The average time to prepare a teledermatology request was 9 minutes. The average wait-time for each subject to be seen face-to-face was 104 days. The average wait-time for teledermatology consultation was 4 days. 88% of subjects stated that they were comfortable with the teledermatology process, and would use it again.

Conclusions: Store-and-forward, web-based teledermatology has been shown to achieve timely skin assessment in a comfortable and practical manner. Although this does not replace a conventional face-to-face consultation, an acceptable level of diagnostic agreement has been demonstrated. This allows for early therapeutic intervention and where applicable, triage to have further diagnostic tests or procedures to streamline any subsequent face-to-face encounter. Larger studies are underway to examine the scope for this promising consultation modality in dermatology.

Comparison of Sun Protection Behaviours Among Metropolitan and Non-Metropolitan Health Regions

Sunil Kalia;^{1,2} Mieke Koehoorn;² Harvey Lui;¹

1. Department of Dermatology and Skin Science, University of British Columbia, Vancouver, BC; 2. Department of Healthcare and Epidemiology, University of British Columbia, Vancouver, BC

Introduction: Because skin cancer is highly associated with ultraviolet radiation, public education programs have aimed to reduce skin cancer through decreasing sunlight exposure. In the present study, the sunburn rates and sun protection behaviours were compared between metropolitan Canadian health regions in Alberta and Prince Edward Island versus non-metropolitan health regions in those provinces.

Methods: The Canadian Community Health Survey Cycle 3.1 (2006) was conducted by Statistics Canada, and 13574 individuals responded to the sun exposure module. The primary outcome of sun exposure included the presence of sunburn, and secondary outcomes of sun protection behaviors were measured. These variables were compared between health regions that differed by their metropolitan status: a metropolitan region was defined as having a population greater than 500000. Simple logistic regression analysis was performed and those variables that were statistically significant were offered to multiple logistic regression analysis.

Results: The prevalence of experiencing a sunburn in the preceding twelve months was significantly higher in the non-metropolitan (37.67%) as compared to the metropolitan health region (32.38%) yielding a crude odds ratio of 1.20(95%CI:1.11-1.31). In addition, respondents from the non-metropolitan health region spend a greater amount of time in the sun from 11am to 4pm(1.15,95%CI:1.05-1.26), and applied sunscreen to their face less frequently(1.39,95%CI:1.27-1.53). They were less likely to wear hats self(0.87,95%CI:0.79-0.95).

Conclusion: In a representative Canadian population, non-metropolitan health regions in Alberta and Prince Edward Island had

higher rates of sunburns compared to metropolitan health regions such as Calgary and Edmonton. This effect was independent of age, sex, marital status, education, having a regular doctor and ethnicity. This discrepancy in outcomes and behaviours according to population size if confirmed in larger scale studies, would be important factors to consider in optimizing the effectiveness of public education and primary prevention.

Development of Melanoma Following Laser Treatment of Melanocytic Nevi in Two Patients

Carly Kirshen;¹ Marcia Hogeling;² John Goodall;²

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

Despite clinical improvement in pigmentation, laser treatments do not destroy all melanocytes. The efficacy of the destructive treatment is increased in superficial and darkly pigmented lesions, however; lesions may not be completely removed and repigmentation at the site is common. There have been case reports detailing the delayed diagnosis of melanoma due to laser treatments of a skin lesion and thus is not recommended for suspiciously pigmented lesions.

Our two cases represent possible correlations between laser treatments of histologically confirmed benign skin lesions and the subsequent development of melanoma. It is difficult to assess whether the laser treatments induced the development of melanoma by altering cellular regulation or whether the development of melanoma was part of the natural evolution of the presenting lesion that was incompletely destroyed by the laser.

A retrospective analysis of cases of malignant melanoma may reveal more patients who received laser treatment for a previous pigmented benign nevus in the same location. If this is the case, patients treated with laser may require follow-up appointments and education regarding changes associated with the development of melanoma. We recommend exercising caution when considering laser treatment of melanocytic nevi.

An Interesting Case of Mercaptobenzothiazole Allergic Contact Dermatitis Secondary to Elastic in Thong Underwear from Fruit Of The Loom

Irèn Kossintseva;¹ Melanie Pratt;²

1. University of Alberta, Edmonton, AB; 2. University of Ottawa, Ottawa, ON

A 41 year old woman presented with a severe dermatitic eruption in the pattern of thong underwear. The eruption first developed 1.5 years prior to our clinical assessment, and was inflamed, erythematous, extremely pruritic and located over the area of contact with the elastic from her thong underwear, taking 10 days to resolve. Subsequently, new eruptions developed within 10 hours of wearing thong underwear, clearing after one day and switching to a different brand. Once healed, the patient gradually re-introduced various thongs and elucidated the offender. She found that the 100% Cotton Fruit Of The Loom would always result in a flare, developing within minutes of contact, and lasting up to 24 hours.

This included Fruit Of The Loom thongs which she did not bleach. In particular it was the contact between the elastic in the thong that was causing the problem. In addition, the patient noticed that she would develop a similar reaction to a rubber cap used when highlighting her hair. Previously, she also had a urticarial reaction to latex from rubber gloves. Otherwise she did not experience any problems with garments such as bras, bathing suits, shoes, and had no adverse reactions to kiwi fruit. She was otherwise healthy, on no medications, and with no known drug allergies. She had a remote history of atopic dermatitis as a child, and her family history was positive for atopy.

Patch testing was performed with the North American Contact Dermatitis Group (NACDG) Standard Allergens, Rubber Series, and patient's own elastic from Fruit Of The Loom thong. She was severely positive to Mercaptobenzothiazole, Thiuram mix, Mercapto mix from the NACDG, her own thong underwear elastic and some of the constituents of the Thiuram and Mercapto mix from the Rubber Series.

The patient was educated about rubber accelerators and was advised to avoid the use of sponge makeup applicators, gloves and condoms. She was told to use a plastic scalp cap for hair-dyeing.

Primary Cutaneous Cryptococcosis in an Immunocompromised Patient Without Exposure History

Tiffany Kwok;¹ Norman R. Wasel;²

1. Schulich School of Medicine, University of Western Ontario, London, ON; 2. Stratica Medical and University of Alberta, Edmonton, AB

Cryptococcosis is a fungal disease caused by transmission of the encapsulated yeast *Cryptococcus neoformans*. Cutaneous manifestations occur most commonly secondary to systemic dissemination and, in such cases, are more severe than the less common variant, primary cutaneous cryptococcosis (PCC). PCC results from direct inoculation, usually after injury to an unclothed area of the skin, and/or exposure to outdoor activities and bird droppings, but may occur in immunocompromised individuals without an obvious exposure history.

We present the case of a 39-year-old Portugese-Canadian man who presented to our dermatology clinic with a single 2cm brown ulcerated, crusted, pus-filled nodule on the right upper posterior thigh that had been present for the previous two months. There was no history of trauma to the leg, penetrating injury, fever, or systemic symptoms. The patient reported an 11-year history of nodal and pulmonary sarcoidosis treated with methotrexate and prednisone. Skin biopsies of the lesion on the thigh submitted for histology and fungal culture revealed *C. neoformans*. Cryptococcal serum antigen was negative, ruling out disseminated disease, and a diagnosis of PCC was reached despite the absence of an exposure history. The lesion was determined to result from immune suppression due to methotrexate and prednisone therapy, and his doses on these medications were lowered despite persistent pulmonary sarcoidosis. The patient was treated with oral fluconazole 200 mg daily. The lesion has since flattened with decreased induration and crusting,

and no new lesions have been reported. He completed therapy on fluconazole for 6 months, clearing the infection.

This case describes clinical and histopathological features of primary cutaneous cryptococcosis, contrasting it with its disseminated variant, and highlighting the need to differentiate, especially in those with unknown or absent exposure histories.

Adenoid Cystic Carcinoma of the Eyelid : A Rare Cutaneous Tumor Treated with Mohs Micrographic Surgery

Philippe Lafaille; Rita Sammour; Mark Krasny; Valerie Joncas; Guy Allaire; Steven Bernstein, University of Montreal Hospital Centre, Montreal, QC

A previously healthy 59-year-old man presented with a 1-year-history of a slowly enlarging asymptomatic lesion of the eyelid. A biopsy revealed nests of basaloid cells arranged in cribriform, solid and tubular patterns with extensive perineural invasion. These histopathologic features were compatible with the diagnosis of an adenoid cystic carcinoma. The tumor was removed with Mohs surgery and the patient remains free of tumor at one year follow-up.

Eyelid adenoid cystic carcinoma (ACC) is a rare tumor with characteristic histology. Only three cases of eyelid ACC have been reported to date, displaying an indolent and progressive course (18 months-10 years before diagnosis). Despite its limited potential for metastasis, primary cutaneous ACC is locally aggressive with frequent perineural invasion (more than 50%). It is an important mode of tumor spread and is associated with increased aggressiveness and higher local recurrences rates (up to 59%) following standard excision. Mohs surgery has been performed in four cases of primary cutaneous ACC including two cases of recurrent tumor and no local recurrences were noted on follow-up varying from 10 to 28 months.

We believe that Mohs surgery is particularly suitable for this tumor, especially in an anatomic area where tissue preservation is paramount. To our knowledge, this is the first eyelid ACC treated with Mohs surgery.

Use of Alefacept for the Treatment of Psoriasis in Canada: The A.W.A.R.E. Program

Ian D. Landells¹; Gordon Searles²; Neil Shear³; Robert Bissonnette⁴

1. Nexus Clinical Research, St. John's, NL; 2. University of Alberta, Edmonton, AB; 3. University of Toronto, Toronto, ON; 4. Innovaderm Research, Montreal, QC

Introduction: A.W.A.R.E. (Amevive Wisdom Acquired from Real world Evidence) is an ongoing Canadian phase IV clinical study for patients with psoriasis treated with alefacept. The objectives are to develop a national database to support best practice and optimize the care of patients receiving alefacept, generate hypotheses for future clinical research, and gain an understanding of how alefacept is used in a routine clinical practice setting.

Methods: A total of 37 Canadian centers are participating in this clinical study. Eligible patients must have a psoriasis diagnosis,

provide informed consent, receive an alefacept prescription, and agree to be followed for at least 52 weeks. Data recorded at each visit include body surface area (BSA) involvement with psoriasis, alefacept dosing and time to re-treatment, physician global psoriasis response (PGR; scale of 0 to 6), patient global response, and concomitant psoriasis therapies. Serious adverse events are also collected.

Results and Conclusions: As of January 3rd, 2008, 426 patients have been enrolled (85% have completed one course of alefacept and 33% have received a second course). Preliminary data are available for 190 patients and are presented herein. At week 18, alefacept resulted in a favourable decrease in the percent BSA affected from baseline and 64% of patients presented with a PGR between 3 (moderate improvement) and 0 (clear). Of those patients receiving a second alefacept course, 14%, 55%, 17%, and 14% received their second course between 0-12 weeks, 13-24 weeks, 25-36 weeks and 37-48 weeks, respectively. In this Canadian study, alefacept resulted in a favourable improvement in psoriasis symptoms when used in clinical practice.

The Dermingham: A Psoriasis Patient Screening Questionnaire and Aid for Selecting Appropriate Systemic Therapy

Ian D. Landells¹; Caroline A. MacCallum²; Lyn Guenther³

1. Nexus Clinical Research & Memorial University of Newfoundland, St. John's, NL; 2. Memorial University of Newfoundland, St. John's, NL; 3. The Guenther Dermatology Research Centre, London, ON

Introduction: Patients with moderate-to-severe psoriasis usually require treatment with phototherapy, traditional systemic agents (e.g. methotrexate, cyclosporine, acitretin) or biologics. When choosing appropriate therapy for a particular patient, co-morbidities, contraindications, response (including adverse effects) to previous therapy, concomitant therapies, family history, convenience, access, and patient preference must be considered. This can be a complex, daunting and time-consuming process, particularly since there are many therapies to choose from. Time-management is a priority for dermatologists, particularly since there are physician shortages in many regions. Inadequate time to devote to this decision process may lead to avoidance of the use of systemic agents and therefore under treatment of patients with moderate-to-severe psoriasis, or inappropriate choices with adverse events that could have been avoided. Comprehensive simple decision tools are needed.

Methods: Product monographs were reviewed and a literature search was conducted looking specifically at efficacy, ease and method of administration, contraindications, adverse effects, safety concerns, drug interactions and cost for the following medications: psoralen + ultraviolet A (PUVA), methotrexate, cyclosporine, acitretin, alefacept, efalizumab, etanercept, infliximab and adalimumab, products that are currently approved for treatment of psoriasis in order to determine which treatments would be appropriate for a particular patient.

Results: There are contraindications and safety concerns for all of the treatments reviewed. To simplify the decision process, two tools were developed, a screening questionnaire checklist that can be completed by patients in the waiting room, and a treatment algorithm. The material from the patient questionnaire can be easily entered into the algorithm in order to determine optimal treatment for a particular patient.

Conclusions: The selection of optimal systemic anti-psoriatic therapy for an individual patient is a complex task. Use of a comprehensive patient questionnaire and treatment algorithm may simplify the task, save physician time and enhance patient safety.

High Prevalence and Under-diagnosis of Cardiovascular Risk Factors Among Psoriasis Patients in a Clinical Trial Population

Richard Langley¹; Gerald G. Krueger²; Kristian Reich³; Philippe Szapary⁴; Newman Yeilding⁴; Cynthia Guzzo⁴; Ming-chun Hsu⁴; Shu Li⁴; Alexa Kimball⁵
1. Dalhousie University, Halifax, NS; 2. University of Utah, Salt Lake City, UT, USA; 3. Georg-August University, Göttingen, Germany; 4. Centocor, Inc., Malvern, PA, USA; 5. Harvard Medical School, Boston, MA, USA

Objectives: The prevalence of cardiovascular risk factors in the Phase 2/3 ustekinumab (CANTO1275) psoriasis studies was compared with rates in the general US population.

Methods: Medical histories [diabetes (DM), hypertension (HTN), hyperlipidemia (HLP), and smoking] were obtained from 2295 moderate-to-severe psoriasis patients in Phase 2 and 3 trials. Body mass index (BMI) was used to evaluate the proportions of patients who were overweight (BMI ≥ 25) or obese (BMI ≥ 30). Prevalence ratios and associated 95% CI were calculated using age and gender adjusted prevalence rates for the general US population obtained from the CDC. Blood pressure (BP), fasting plasma glucose (FPG), and fasting lipids were measured in Phase 3 trials to evaluate rates of undiagnosed DM (FPG ≥ 7.0 mmol/L), HTN (systolic BP ≥ 140 or diastolic BP ≥ 90 mmHg), and HLP (total cholesterol ≥ 6.20 mmol/L).

Results: In this trial population, rates of DM, HTN, HLP, smoking, overweight, and obesity were 11.1%, 27.6%, 20.5%, 31.9%, 82.5% and 49%, respectively. The prevalences of most cardiovascular risk factors in the ustekinumab trials were higher than the general US population, with prevalence ratios of: 1.56-fold for DM (95% CI: 1.38, 1.75), 1.11 for HLP (95% CI: 1.02, 1.20), 1.37-fold for smoking (95% CI: 1.29, 1.46), 1.18-fold for overweight (95% CI: 1.15, 1.20), and 1.50-fold for obesity (95% CI: 1.44, 1.56). Among patients without a known history of DM, 6.3% met the diagnostic criteria for DM. Among patients without known histories of HTN or HLP, 12.9%, and 5.5% met diagnostic criteria, respectively.

Conclusions: The prevalence of certain established cardiovascular risk factors in moderate-to-severe psoriasis patients is higher than the general US population. There are additional patients with previously undiagnosed cardiovascular risk factors in the psoriasis trial population.

Efalizumab's Effectiveness in Treating Nail Lesions in Plaque Psoriasis: Interim Subanalysis of the Canadian RESTORE Study Data

Charles W. Lynde¹; Kirk Barber²

1. University of Toronto, University Health Network, Markham, ON; 2. Lynde Centre for Dermatology, Markham, ON; 3. Kirk Barber Research, Calgary, AB

Introduction: Psoriasis of the nails affects up to 50% of patients with psoriasis. Efalizumab, a humanized anti-CD11a antibody that modulates the immune response by limiting cutaneous T-cell activation, is approved in Canada for use in adults with chronic moderate-to-severe plaque psoriasis who are candidates for systemic therapy or phototherapy. In a recent prospective phase 3 study in Latin America, efalizumab achieved at least 50% improvement in Nail Psoriasis Severity Index (NAPSI) score at 24 weeks in one-third of the patients with nail psoriasis. The Raptiva Evaluation of Safety and Treatment Optimization Registry (RESTORE) is a four-year post-marketing trial to address the long-term efficacy and safety of efalizumab in Canada. The database was recently analyzed for nail outcomes, and we will present interim efficacy and safety data from RESTORE patients over the first year.

Methods: Canadian adults with chronic plaque psoriasis, with or without nail involvement, could be included in RESTORE. Enrolled patients received a weekly subcutaneous dose of efalizumab (1.0 mg/kg/week, except for 0.7 mg/kg on Day 0). The primary endpoint for efficacy was the proportion of patients achieving and maintaining a Physician's Global Assessment (PGA) score of "excellent" or "cleared" at the end of the study. For patients with nail psoriasis, a secondary endpoint was the change in NAPSI score from Baseline to the end of the study. The primary endpoints for safety are the incidence and severity of treatment-emergent adverse events (AEs).

Results: Data showing the effectiveness of efalizumab for nail psoriasis in RESTORE will be presented, as judged by improvement in the nail PGA score.

Conclusions: Efalizumab was shown to be effective for nail psoriasis in a recent randomized controlled trial. Canadian data from the RESTORE study will be presented to supplement these findings.

The Burden of Psoriasis and Psoriatic Arthritis In Canada: Insights From the Psoriasis Knowledge In Canada (SKIN) Survey

Charles W. Lynde¹; Yves Poulin²; Lyn Guenther³

1. Lynde Center for Dermatology, Markham, ; 2. Department of Medicine, Laval University, Quebec, QC; 3. The Guenther Dermatology Research Centre, London, ON

Introduction: Psoriasis is a common skin disorder that can persist, with a variable course, throughout adult life. While it is increasingly recognized that psoriasis and psoriatic Arthritis (PsA) can reduce quality of life (QoL), little is known about the burden of these diseases among Canadians. The objectives of this survey were to gain insight into the lives of Canadians suffering from psoriasis/PsA and to determine their impact on QoL.

Abstracts

Methods: SKIN was a telephone survey of 500 adult Canadians with psoriasis, with or without PsA, who considered themselves informed about psoriasis and indicated that their worst flare affected a body surface area (BSA) equivalent to ≥ 3 of their palms. Survey topics included patient-assessed disease control, patient's attitude towards the effect of their burden of illness on QoL, and medication usage.

Results: For approximately two-thirds of respondents, affected BSA during the worst outbreak was $\geq 10\%$. Half of respondents said they had persistent joint pain or stiffness and 17.6% said they had been diagnosed with PsA. Psoriasis created problems with partners, friends, or relatives for 27.0% of respondents and 55.8% lost sleep or slept badly because of their condition. When asked, 66.4% of respondents agreed that psoriasis ranks number two in terms of its impact on emotions and QoL out of ten of the worst diseases, including cancer, heart disease, diabetes and arthritis.

Since the onset of their psoriasis, 8.6% of respondents had used an injectable prescription while 91.0% of had used prescription creams or lotions.

Conclusions: The SKIN survey offers insights into the attitudes of Canadians with psoriasis/PsA about their burden of these diseases. Respondents indicated their disease had a negative impact on their QoL and the majority was using topical treatments for their conditions.

Research funded by Amgen Canada Inc., and Wyeth Pharmaceuticals.

Patterns of Skin Disease in the Homeless

Jillian Macdonald,¹ James Walker,^{1,2}

1. University of Ottawa, Ottawa, ON; 2. The Ottawa Hospital, Ottawa, ON

There are many diagnostic and therapeutic challenges associated with dermatologic conditions in the homeless. We review an Ottawa experience of the patterns of skin disease within this diverse group. These were encountered during medical rounds of the city's shelters for the homeless.

The Burden of Psoriasis and Barriers to Satisfactory Management: Results From a Canadian Survey

Ronald Mahler,¹ Meaghan Mahler,²

1. Northern Ontario School of Medicine, Lakehead University, and Private Practice, Thunder Bay, ON; 2. McGill University, Montreal, QC

Introduction: Little is known about the delivery of psoriasis care in Canada. The Stand Up and Speak Out survey was designed to address gaps in our understanding of the physical, mental, social and financial burden of psoriasis in Canada and the care received by Canadians living with psoriasis.

Methods: The Psoriasis Education Program (PEP) is a national public awareness program that provides accurate, comprehensive and non-commercial information on psoriasis to patients, families, healthcare professionals and the general public. PEP members who

gave permission to be contacted were invited to respond to an online survey.

Results: Of 1517 PEP members contacted, 457 (~30%) responded, including 411 individuals with psoriasis and 46 family members. As expected, respondents with psoriasis were more severely affected than the larger psoriasis patient population; 79% reported an affected body surface area consistent with moderate to severe disease. Common comorbidities included arthritis, depression and anxiety. Of the 411 respondents with psoriasis, 25% indicated that they required counselling and 21% required medication for stress, anxiety or depression caused by their psoriasis. Forty-four percent had part-time or no employment. Despite the prevalence of severe disease, most of these individuals were treated with topical agents. Only 28% and 19%, respectively, had discussed systemic agents and biologics as treatment options with their physicians. Treatment satisfaction was dramatically higher among respondents using biologics than in the other respondents with psoriasis (30/37 (81%) vs. 146/374 (39%) reporting they were satisfied). Biologics users were also distinctive in that the majority of them had medical insurance to cover their full treatment costs.

Conclusions: Psoriasis in Canada appears to be a heavy burden that is only rarely controlled satisfactorily. A perceived financial barrier, reflected in underemployment and low rates of health insurance, may help explain the infrequent discussion and use of biologic agents, even in this severely affected group of individuals.

Topical Application of Silver Nitrate Can Cause Black Macules Resembling Cutaneous Infarcts

Andrei I. Metelitsa; Jaggi Rao; Eric H. Schloss; Andrew N. Lin

Division of Dermatology and Cutaneous Sciences, University of Alberta, Edmonton, AB

Introduction: Silver nitrate is a topical antiseptic and caustic agent that can be used to treat warts, molluscum contagiosum, excess growth of granulation tissue, and to arrest bleeding after curettage. Topical application can lead to black discoloration of the skin, a little-known adverse effect that has previously been reported to resemble gangrene.

Methods: We describe clinical and histopathologic data about a patient in whom treatment with topical preparation containing silver nitrate led to development of black macules resembling cutaneous infarcts, and discuss results of a computer search of the medical literature.

Results and Conclusions: A 72-year-old man with 20-year history of psoriasis presented with dozens of well demarcated, 2 to 3 mm black macules scattered on the dorsal and palmar aspects of the right hand, and over the nail plates of the fingers of the same hand, present for the preceding 2 months. Clinical differential diagnosis included exogenous pigmentation, and cutaneous infarcts caused by emboli originating from possible arterial aneurysms in the right arm. Arteriography showed ectatic and aneurysmal innominate artery and proximal right subclavian artery, but CT peripheral angiography showed only tortuosity and ectasia of the right subclavian artery, without evidence of frank aneurysmal dilatation.

Skin biopsy specimens obtained from the right thumb and little finger showed presence of exogenous pigmentation. Upon further questioning, the patient reported he had been applying a topical preparation consisting of 0.1% silver nitrate and 6% salicylic acid in zinc oxide paste to fissures on the right hand for about 5 months. He was asked to stop applying this preparation, and when he was seen 5 weeks later, the lesions had all resolved.

Silver nitrate is known to stain the skin a greyish or black color that becomes visible after exposure to sunlight. Our case highlights the observation that topical application of preparations containing silver nitrate can cause black macules that resemble cutaneous infarcts, and that these lesions resolve when application of the offending preparation is stopped.

Hydroacanthoma Simplex: A Rare Benign Adnexal Tumour

Andrei I. Metelitsa¹, Victor Tron², Andrew N. Lin¹

1. Division of Dermatology and Cutaneous Sciences, University of Alberta, Edmonton, AB; 2. Department of Pathology and Molecular Medicine, Queen's University, Kingston, ON

Introduction: Hydroacanthoma simplex is a rare benign adnexal tumour that lacks distinctive clinical features, and is difficult to diagnose clinically. We present the case of a patient with hydroacanthoma simplex in order to promote awareness of this unusual tumour.

Methods: We describe the clinical and histologic features of a patient with hydroacanthoma simplex, and summarize results of a computer search of the English language medical literature.

Results and Conclusions: A woman presented at age 77 years with an asymptomatic lesion of uncertain duration on the right suprapubic area. Examination showed a well demarcated, 2 cm, oval, reddish-brown plaque. The clinical differential diagnosis included superficial basal cell carcinoma and Bowen's disease. Histological examination of a biopsy specimen showed round collections of small epithelial cells within the epidermis, occasionally forming small eccrine ducts, establishing the diagnosis of hydroacanthoma simplex. The patient was seen 3 years later, reporting the lesion had enlarged, but repeat biopsy again showed features of hydroacanthoma simplex. When seen 30 months later, the lesion had remained unchanged.

Our review of the English language literature revealed less than 130 published cases of hydroacanthoma simplex. As with our patient, most cases were clinically diagnosed as basal cell carcinoma, Bowen's disease, or seborrheic keratosis, and were correctly diagnosed only on biopsy. Malignant transformation has been reported in rare instances.

Hydroacanthoma simplex is a rare intra-epidermal variant of eccrine poroma. It lacks characteristic clinical features, and is often diagnosed clinically as various common benign and malignant lesions. Biopsy shows intra-epidermal aggregates of cuboid to ovoid cells, features that help establish the diagnosis.

Cost Comparison of Psoriasis Treatments

Dalia Mikhael Saikaly¹, Kelly Babcock², Jean-pierre DesGroseilliers³

1. University of Ottawa, Ottawa, ON; 2. Director of Pharmacy, Elizabeth Bruyere Health Centre, Ottawa, ON; 3. Professor of Medicine (Dermatology), University of Ottawa, Ottawa, ON

Introduction: The purpose of this study is to compare the cost of psoriasis treatments over periods of 1 month, 1 year and 10 years in the province of Ontario, Canada

Methods: We chose a hypothetical patient with plaque-type psoriasis with a Psoriasis Area and Severity Index (PASI) of 10, body surface area (BSA) of 20% and no joint involvement. We compare the costs to treat this patient with different therapeutic regimens. Efficacy is not considered.

Monthly cost estimates are based on 1% BSA involvement requiring 0.5g/ day of topical treatment. The systemic medications and biologics costs are based on the average monthly dosing reported in the literature. Phototherapy pricing was derived from an average frequency of visits (30 /year) as well as the monthly cost of Psoralen for 30 treatments of Psoralen plus ultraviolet A (PUVA). The costs of narrow-band ultraviolet B (NB-UVB) home units were obtained from the manufacturer. In addition, we include an estimate for laboratory costs and physician visits for each of the therapeutic regimens. We did not include costs related to gasoline, parking or time lost from work.

Results and Conclusions: A detailed table will outline the above costs for each of the treatment modalities. The costs will be projected on a monthly, yearly and 10- year basis. Finally, a bar graph will compare the relative cost of each treatment.

With the knowledge of these data, cost-conscious prescribing by the dermatologist may reduce the financial burden to the patient, to the provincial health care system and to the private insurance companies.

Efalizumab Therapy in a Patient With Psoriasis and Concomitant Hepatitis C

Raynald Molinari, Assistant Professor of Medecine(Dermatology) McGill University, Laval, QC

The treatment of severe psoriasis with concomitant hepatitis-C virus infection is challenging because several systemic anti-psoriatic drugs are contraindicated owing to their hepatic toxicities.

We present a case of a 48-year-old woman suffering from severe psoriasis and concomitant Hepatitis C. Her psoriasis became resistant to phototherapy with broadband UVB, PUVA, systemic retinoids as monotherapy or in association(Re-UVB and Re-PUVA). She had an excellent response to cyclosporin, however she had reached the maximal recommended duration of administration for this drug in treating psoriasis. Efalizumab therapy (1 mg/kg/wk) was initiated. There was a slow onset of response, at 12 weeks the PGA was fair (25-45%).A decision to continue treatment was made. Improvement increased with continuous treatment at 36 and 56 weeks of continuous therapy the PGA was excellent(75-99%). There

are several reports in the literature of the treatment in patients with psoriasis and concomitant hepatitis C with anti-TNF alpha biologic agents (etanercept, adalimumab) as well as with alefacept a non anti-TNF alpha biologic agent. This case report suggests that efalizumab could possibly be considered as a therapeutic agent in patients with psoriasis and concomitant Hepatitis C where there would be failures or contraindications to the use of other biologic therapies.

Efalizumab Therapy in a Patient with Psoriasis and Subacute Lupus Erythematosus

Raynald Molinari; Assistant Professor of Medicine (Dermatology) McGill University, Laval, QC

Efalizumab is a humanized anti-CD11a monoclonal IgG1 antibody. It targets psoriasis pathogenesis at multiple levels and its efficacy in the treatment of psoriasis is well established. It has also been used to treat discoid lupus erythematosus. We present a case of a 22-year old woman with psoriasis and concomitant subacute lupus erythematosus successfully treated with efalizumab. She had been treated in the past with broadband UVB without adverse effects and good response to this treatment modality. Within hours of her second exposure to broadband UVB for the treatment of her psoriasis, she developed erythematous plaques on her trunk. A polymorphous light eruption was suspected and the phototherapy treatment discontinued. The photo-induced eruption resolved within a few days with the use of a topical corticosteroid agent. Against medical advice she went to a tanning salon and within hours after exposure to the fluorescent lamps she developed the same eruption that occurred after exposure to broadband UVB. A skin biopsy was obtained and the histopathological findings were consistent with subacute lupus erythematosus. Immunological work-up revealed negative antinuclear antibodies (subsequently positive), negative antibody to ds-DNA, and positive extractable nuclear antibody-SS-A. In the course of a few weeks, her photo-induced eruption on her trunk became psoriasiform. Efalizumab therapy was started (1 mg/kg/week). After 12 weeks of treatment, there was complete clearing of her subacute lupus lesions and the PGA of her psoriasis was excellent (75-99%). At 16 weeks, she remained clear of the subacute lupus lesions. Interestingly efalizumab has been successfully used to treat subacute lupus erythematosus, but it has also been reported to be an inducer of this condition.

Exacerbation of Darier's Disease following Lithium Administration in a Bipolar Patient

Jennifer Ngo¹ Richard Haber;²

1. Faculty of Medicine, University of Calgary, Calgary, AB; 2. Division of Dermatology, University of Calgary, Calgary, AB

Introduction: Darier's disease (DD) and Hailey-Hailey disease (HHD) are rare, autosomal dominant genodermatoses caused by mutations in the respective genes ATP2A2 and ATP2C1, which encode the respective calcium ATPases SERCA2 and PMRI/SPCA1. Lithium is an effective therapy used as prophylaxis against recur-

rent mania and to treat acute schizoaffective, impulsive, and alcoholic disorders. However, there have been isolated reports of lithium administration causing exacerbations of DD.

Methods: We discuss a patient with DD who claimed that her skin condition flared after she began lithium therapy for bipolar disorder. This case prompted a review of the literature for associations between lithium and DD as well as the genetically similar HHD.

Results and Conclusions: 1) Lithium therapy may indeed exacerbate DD, but it is an association that may not be well recognized. To our knowledge, there are less than half a dozen case reports of this phenomenon. 2) Not uncommonly, DD has been observed to coexist with affective disorders, with reports of the bipolar disorder susceptibility locus co-segregating with a separate DD gene. 3) Recent studies in rats propose that the mechanism by which lithium worsens disease is through suppressing transcription of the already haploinsufficient genes, ATP2A2 and ATP2C1, in the epidermis of DD and HHD patients, respectively. This decreases epidermal SERCA2 and SPCA1 expression to critical levels, leading to the characteristic acantholytic changes observed in these genodermatoses.

Herein we review the etiology, clinical presentation, pathology, co-existence with affective disorders, and mechanism by which lithium causes exacerbation of DD and HHD.

Hypopigmented Mycosis Fungoides in an 8-year old Boy and Literature Review of Juvenile-Onset Mycosis Fungoides

Jennifer Ngo¹ Richard Haber;²

1. Faculty of Medicine, University of Calgary, Calgary, AB; 2. Division of Dermatology, University of Calgary, Calgary, AB

Introduction: Mycosis Fungoides (MF) is the most common form of Cutaneous T-Cell Lymphoma (CTCL) and typically affects older adults. It is estimated that less than 5% of MF cases are of juvenile onset. The classic lesions are scaly, erythematous patches and plaques that may evolve into nodules, but occasionally, hypopigmented lesions have been described. This hypopigmented variant of MF has been more commonly observed in dark-skinned individuals and predominantly in juvenile-onset cases.

Methods: We describe an 8-year old otherwise healthy Hispanic male who, by 6 months of age, had developed asymptomatic hypopigmented patches on the lower legs, thighs, and buttocks. These lesions have gradually increased in size and number over the course of seven years. This past year, erythematous, scaly patches have developed and are superimposed on the existing hypopigmented lesions. Immunohistological and molecular biology studies are consistent with MF. He is to begin treatment with narrowband UVB.

Results and Conclusions: Hypopigmented MF is an uncommon variant of a condition that is itself unusual in the pediatric population. It initially may not be clinically suspected and therefore underdiagnosed or misdiagnosed as a more common condition such as atopic dermatitis, post-inflammatory hypopigmentation, or vitiligo. MF should be included in the differential diagnosis of childhood

hypopigmented dermatoses as proper diagnosis and management have been reported to lead to favorable clinical outcomes. An established treatment protocol for juvenile-onset MF is currently lacking but various treatment modalities used in adult patients including narrowband UVB and PUVA phototherapies have shown promising results in the pediatric population.

Herein we review the clinical features, pathology, molecular biology, treatment options, and prognosis for juvenile-onset MF and we review other cases of juvenile-onset MF in the literature.

Are All Seborrheic Keratoses Benign? A Review of the Typical and Variants of this Common Lesion

Kristin L. Noiles;¹ Ronald Vender;²

1. Michael G. DeGroot School of Medicine, McMaster University, Hamilton, ON; 2. Faculty of Medicine, McMaster University, Hamilton, ON

Introduction: Seborrheic keratosis (SK) is one of the more common benign epidermal neoplasms seen in adult and middle-aged patients. However, as there is much variation in the morphology of SKs, clinical diagnosis can sometimes be challenging. The association of SKs with other malignancies, such as melanomas, is not common knowledge nor well understood. This highlights the importance of an accurate and confident diagnosis. As little is written in the literature about the variants of SK, this manuscript presents an approach to categorizing the different subtypes and discussing important associations.

Methods: An in-depth literature search using OVID MedLine and PubMed was conducted to categorize the various subtypes of SK. Clinical variants were photographed and used to help document the subtypes. Pathology is described for each.

Results and Conclusions: Six subtypes of SK were identified: dermatosis papulosa nigra, stucco keratosis, inverted follicular keratosis, large cell acanthoma, lichenoid keratosis, and flat seborrheic keratosis. While the etiology and pathogenesis of SKs are still largely debatable, several underlying mechanisms and contributing factors have been identified. Clinically, SKs may resemble verruca vulgaris, condyloma acuminata, melanocytic nevus, acrochordon, acrokeratosis verruciformis and many other benign and malignant lesions. All subtypes represent benign lesions and treatment is usually done for cosmetic reasons. The sudden appearance, increase in number and inflammation of SKs can be clinically important as well. Several of the subtypes may act as cutaneous markers for internal malignancy and should be monitored closely for any atypical changes.

Safety of 50% Isopropyl Myristate in Pediatric Population

Kathleen G. Palma;¹ Aditya K. Gupta;² Linn Sinnott;³ Jim Bowman;³

1. Piedmont Pharmaceuticals, Greensboro, NC, USA; 2. Mediprobe Research Inc., London, ON; 3. Hill Top Research, Miami, FL, USA

Introduction: Pediculosis, or head lice infestations, is a world-wide health concern that is estimated to affect between 1.6% and 13% of

all elementary school children. Most standard treatments currently utilize neurotoxicity as their primary mode of action. Concern over the safety of such treatments and increasing evidence of lice resistance to these therapies has led to a need for more effective and safer treatment options. A novel pediculicide rinse with a mechanical mode of action, containing 50% isopropyl myristate (IPM) and 50% cyclomethicone has been developed to meet these needs. IPM is commonly found in many cosmetic and dermatological products, and clinical trials evaluating the efficacy and safety of IPM have shown promising results. However, the safety of IPM among the pediatric population (children aged 6 months to 4 years) has yet to be determined. Here we review the safety of 50% isopropyl myristate in the pediatric population.

Methods: A multi-centre, open-label, phase III study conducted in 14 states across the U.S. has a total of 260 subjects who have completed treatment with 50% IPM, with 69 sentinel subjects between the ages of 6 months and 3 years of age. Enrolment for this study is ongoing.

Results: Preliminary results from the phase III study have shown only 1 drug-related adverse event reported among the 260 participants in this trial. This adverse event (burning when treatment was applied) was reported in a 1 year-old child. Efficacy in sentinel subjects was no different from that in the rest of the study population.

Conclusions: Preliminary results suggest that 50% isopropyl myristate is safe to use in subjects as young as 6 months of age.

Efficacy and Safety of Ustekinumab, an Anti-IL-12/23p40 Antibody, for Treatment of Moderate-to-severe Psoriasis

Kim Papp;¹ Newman Yeilding;² Yuhua Wang;² Alexa B. Kimball;³

1. Probit Medical Research, Waterloo, ON; 2. Centocor Research and Development, Inc., Malvern, PA, USA; 3. Harvard Medical School, Boston, MA, USA

Background: Studies of a novel human monoclonal antibody against interleukin 12/23p40, ustekinumab (UST), demonstrate significant short-term efficacy in moderate-to-severe plaque psoriasis patients. We report results through week 28 from PHOENIX 1.

Methods: In this double-blind, placebo-controlled trial, 766 patients were randomized to subcutaneously administered UST (two 45- or 90 mg doses at weeks 0 and 4, followed by 45- or 90-mg q12-weeks) or placebo. Patients in the placebo group were to cross over to receive either 45- or 90 mg at weeks 12 and 16 followed by q12-week dosing. The primary endpoint was the proportion of patients who achieved PASI75 at week 12. Improvement was also assessed using a PGA on a scale of 0=cleared, 1=minimal, 3=moderate, 4=marked, 5=severe.

Results: At week 12, 67% and 66% of patients in the 45- and 90 mg UST groups, respectively, achieved PASI75 compared with 3% who received placebo (each $p < 0.001$ compared with placebo). Similar proportions of patients (60% and 62%, respectively) achieved a PGA of cleared (0) or minimal (1), compared with 4% of placebo patients (each $p < 0.001$ compared with placebo). At week 28, 71% and 79% of patients receiving 45- and 90 mg UST, respectively, achieved PASI75, and 49% and 56% of such pa-

tients achieved PASI90, respectively. PGA of cleared or minimal was achieved by 59% and 66% of patients in the respective UST groups at week 28. Improvements in clinical measures paralleled improvements in quality of life measures. UST was generally well tolerated. Through week 12, 57% and 51% of patients in the 45 and 90 mg UST groups, respectively, experienced ≥ 1 AE compared with 48% of patients receiving placebo; 0.8% and 1.6% of patients in these respective UST groups experienced ≥ 1 serious AE compared with 0.8% of patients receiving placebo.

Conclusions: UST is highly efficacious in psoriasis with infrequent administration and demonstrates a favorable safety profile.

Long-term Continuous Maintenance Therapy with Ustekinumab (anti-IL-12/23p40) as Treatment for Psoriasis: Phase 3 Trial Results

Kim Papp,¹ Kenneth B. Gordon,² Alexa B. Kimball,³ Newman Yeilding,⁴ Shu Li,⁴ Craig Leonardi,⁵

1. Probit Medical Research, Waterloo, ON; 2. Northwestern University Feinberg School of Medicine and Evanston Northwestern Healthcare, Skokie, IL, USA; 3. Harvard Medical School, Boston, MA, USA; 4. Centocor Research and Development, Inc., Malvern, PA, USA; 5. St. Louis University Medical School, St. Louis, MO, USA

Objective: Ustekinumab (CANTO 1275), a human monoclonal antibody against interleukin 12/23p40, showed significant efficacy in treating moderate-to-severe plaque psoriasis patients. Long-term continuous use of ustekinumab was assessed using a randomized withdrawal trial design.

Methods: PHOENIX 1 was a double-blind, placebo-controlled trial of 766 patients randomized to receive SC ustekinumab (two 45 or 90mg doses four weeks apart followed by 45 or 90mg every 12 weeks) or placebo. Patients randomized to placebo crossed over to 45 or 90mg doses at weeks 12 and 16 followed by dosing every 12 weeks. Patients responding to ustekinumab through week 40 were randomized to either continue ustekinumab treatment or switch to placebo.

Results: Significantly higher proportions of patients continuing ustekinumab maintained PASI75 at week 52 compared with those switching to placebo. In patients who continued 45 and 90mg dosing, 87% and 91%, respectively, sustained PASI75 compared with 64% and 62% of patients who switched to placebo ($p=0.001$ for 45 mg comparison; $p<0.001$ for 90 mg comparison versus placebo). 97% and 98% of patients who continued 45 and 90mg ustekinumab dosing, respectively, maintained at least a PASI50 at week 52. At the week 40 randomization, 66% and 73% of patients in the 45 and 90mg dosing groups were PASI90 responders. The proportions of PASI90 responders remained stable through week 52 with continued dosing, but decreased to 37% and 38% of patients withdrawn from 45 and 90mg dosing, respectively. Continuous long-term maintenance therapy with ustekinumab was generally well tolerated. After randomization, 46% and 49% of patients continuing 45 and 90mg ustekinumab dosing, respectively, experienced ≥ 1 AE compared with 56% and 48% of patients switched to placebo; 0.0% and 1.2% of patients continuing on these respective ustekinumab

regimens experienced ≥ 1 SAE compared with 0.0% and 2.3% of patients switched to placebo.

Conclusions: Long-term continuous therapy with ustekinumab is generally well tolerated and maintains a high level of efficacy.

10 Years of Safety Experience for Efalizumab in Psoriasis

Kim A. Papp,¹ Charles W. Lynde,² Darryl P. Toth,³

1. Probit Medical Research Inc., and K Papp Clinical Research Inc., Waterloo, ON; 2. University of Western Ontario, Waterloo, ON; 3. University of Toronto, University Health Network, Markham, ON; 4. Lynde Centre for Dermatology, Markham, ON; 5. Probit Medical Research Inc., Windsor, ON

Introduction: Of the biologic agents approved for chronic moderate-to-severe plaque psoriasis, efalizumab holds the longest record of continuous use in this indication. Here, we review the safety profile of efalizumab, based on more than 10 years of use.

Methods: Safety data were reviewed on patients with psoriasis who received efalizumab during pre- and post-product registration, clinical development and post-marketing surveillance. Safety experience was examined by comparing the incidence of adverse events (AEs) during clinical development and post-marketing. Calculated rates of malignancies were compared to available data from the Canadian Saskatchewan Health database.

Results: The cumulative safety data for efalizumab extended to 28,000 patient-years of exposure. The incidence rate of serious infections for efalizumab was 0.47/100 patient-years, comparing favourably to 1.6/100 patient-years, the rate reported during clinical development. Lymphoproliferative disorders were observed at a rate of 0.1/100 patient-years, similar to the rate for the general population, determined in the Saskatchewan database. The overall rate of skin cancers in efalizumab-exposed patients was also comparable to general Canadian data. Thrombocytopenia occurred in approximately 0.3% of efalizumab-treated patients in clinical trials, as previously found in pre-marketing analyses. Rates for psoriasis- and arthropathy-related AEs during post-marketing were also similar to those from clinical trials.

Conclusions: Since 1997, over 40,000 patients have received efalizumab, and over 28,000 patient-years of exposure have accrued. The long-term safety profile of efalizumab appears similar between post-marketing observations and in the earlier clinical trial data.

Cytokeratin Expression in a Rabbit Melanoma Metastasis Animal Model and Human Lymph Node Negative Cutaneous Primary Melanomas

Susan Poelman, McGill University, Montreal, QC

Background: Cytokeratin (CK) expression has been associated in vitro with an aggressive phenotype, increased metastatic potential, and poor overall survival in patients with a variety of tumors. The purpose of this study was twofold: 1) To compare cytokeratin expression between primary and metastatic tumors in immunosuppressed rabbits inoculated with human cutaneous melanoma cells and 2) To determine if there is an association between human

Abstracts

primary cutaneous melanoma cytokeratin expression and metastasis development.

Methods: For the rabbit animal model, 15 albino rabbits were immunosuppressed with cyclosporine and then inoculated with human cutaneous melanoma cells in the suprachoroidal space. Over a 12 week period, 1 rabbit was sacrificed weekly and tumor samples were preserved in paraffin. In the human retrospective immunohistochemical study, we compared CK expression between primary tumors of 2 groups of patients: those who developed metastatic disease (n=11) and those who remain disease free after a minimum 5-year follow-up period (n=25). Both rabbit and human tumor specimens were stained with antibodies to cytokeratins 8 & 18.

Results: There was decreased expression in CK 8 in lung metastases compared with primary tumors and bone marrow derived malignant cell sample cytopins, while CK 18 expression was increased in lung metastasis compared with primary tumors. In human samples, 23 out of 36 (64%) primary tumors and 5 out of 9 (56%) metastatic tumors exhibited positive immunohistochemical staining for cytokeratins 8 & 18. We found no significant association between CK positivity (>0% cells staining positively) and development of metastasis (P=1.75).

Conclusions: Our results suggest that CK8 downregulation in melanoma cells may modulate metastasis to bone, while CK18 may be involved in migration to and attachment to lung parenchyma. We did not find an association between cytokeratin expression and the development of metastatic disease in this study. However, prior studies have reported antibody-related technical staining difficulties with cytokeratin antibodies and further analysis of these tumor samples with antibodies directed simultaneously at cytokeratins 8 & 18 are ongoing in our laboratory.

Use of Combination Therapy with Alefacept for the Treatment of Psoriasis in Canada: the A.W.A.R.E. Program

Gordon Searles;¹ Neil Shear;² Robert Bissonnette;³ Ian D. Landells;⁴

1. University of Alberta, Edmonton, AB; 2. University of Toronto, Toronto, ON; 3. Innovaderm Research Inc., Montreal, QC; 4. Nexus Clinical Research, St-John's, NL

Introduction: A.W.A.R.E. (Amevive Wisdom Acquired from Real world Evidence) is an ongoing Canadian phase IV clinical study for patients with psoriasis treated with alefacept. The objectives are to develop a national database to support best practice and optimize the care of patients receiving alefacept, generate hypotheses for future clinical research, and gain an understanding of how alefacept is used in a routine clinical practice setting. The use of combination therapy with alefacept for the treatment of psoriasis in Canada was analyzed.

Methods: A total of 37 Canadian centers are participating in this clinical study. Eligible patients must have a psoriasis diagnosis, provide informed consent, receive an alefacept prescription, and agree to be followed for at least 52 weeks. Data recorded at each visit include body surface area (BSA) involvement with psoriasis, alefacept dosing and time to re-treatment, physician global psoriasis response (PGR; scale of 0 to 6), patient global response, and concomitant psoriasis therapies. Serious adverse events are also collected.

Results and Conclusions: As of January 25th, 2008, 426 patients have been enrolled. Data are available for 270 patients who have completed 1 course of alefacept and are presented herein. Alefacept was used most commonly in combination with topical therapy; this use did not change during weeks 0-12 (47%) and 13-24 (44%). The use of alefacept in combination with phototherapy or systemic medications was low (11%). Approximately 18% of patients received triple therapy with alefacept, topical therapy, or systemic medications. Utilization of combination psoriasis therapy with alefacept did not differ according to geographic region or age.

Results and Conclusions: As of January 25th, 2008, 426 patients have been enrolled. Data are available for 270 patients who have completed 1 course of alefacept and are presented herein. Alefacept was used most commonly in combination with topical therapy; this use did not change during weeks 0-12 (47%) and 13-24 (44%). The use of alefacept in combination with phototherapy or systemic medications was low (11%). Approximately 18% of patients received triple therapy with alefacept, topical therapy, or systemic medications. Utilization of combination psoriasis therapy with alefacept did not differ according to geographic region or age.

Use of Combination Therapy with Alefacept for the Treatment of Psoriasis in Canada: the A.W.A.R.E. Program

Gordon E. Searles;¹ Neil Shear;² Robert Bissonnette;³ Ian Landells;⁴

1. University of Alberta, Edmonton, AB; 2. University of Toronto, Toronto, ON; 3. Innovaderm Research, Montreal, QC; 4. Nexus Research, St.John's, NL

Introduction: A.W.A.R.E. (Amevive Wisdom Acquired from Real world Evidence) is an ongoing Canadian phase IV clinical study for patients with psoriasis treated with alefacept. The objectives are to develop a national database to support best practice and optimize the care of patients receiving alefacept, generate hypotheses for future clinical research, and gain an understanding of how alefacept is used in a routine clinical practice setting. The use of combination therapy with alefacept for the treatment of psoriasis in Canada was analyzed.

Methods: A total of 37 Canadian centers are participating in this clinical study. Eligible patients must have a psoriasis diagnosis, provide informed consent, receive an alefacept prescription, and agree to be followed for at least 52 weeks. Data recorded at each visit include body surface area (BSA) involvement with psoriasis, alefacept dosing and time to re-treatment, physician global psoriasis response (PGR; scale of 0 to 6), patient global response, and concomitant psoriasis therapies. Serious adverse events are also collected.

Results and Conclusions: As of January 25th, 2008, 426 patients have been enrolled. Data are available for 270 patients who have completed 1 course of alefacept and are presented herein. Alefacept was used most commonly in combination with topical therapy; this use did not differ during weeks 0-12 (47%) and 13-24 (44%). The use of alefacept in combination with phototherapy or systemic medications was low (11%). Approximately 18% of patients received triple therapy with alefacept, topical therapy, or systemic medications. Utilization of combination psoriasis therapy with alefacept did not differ according to geographic region or age.

Psychopharmacology in Psychodermatology

Rahul Shukla,¹ Denis Sasseville,²

1. University of Toronto, Toronto, ON; 2. McGill University, Montreal, QC

Background: The management of psychodermatological disease often involves the use of psychotropics by dermatologists. A general approach to the psychopharmacological management of psychodermatological disease may be of assistance to the dermatologist.

Objective: We review and provide a current psychopharmacological based approach to management of common psychopathologies associated with psychodermatological disorders, common side effects and potential drug interactions that may occur with selected psychotropics.

Methods: Using relevant MeSH terms, we performed a review of the literature from 1980 to 2006.

Results and Conclusions: Effective psychopharmacologic management of psychodermatologic disease involves identifying and basing treatment on the associated psychopathology, familiarity with a variety of psychotropic agents including antidepressants, anxiolytics, and antipsychotics, and the involvement of a psychiatrist when possible.

Bilateral Neutrophilic Dermatitis of the Hands in Association with Small Cell Carcinoma of the Lung

Chris S. Sladden; Richard I. Crawford, UBC Department of Dermatology and Skin Science, Vancouver, BC

Pyoderma gangrenosum is an uncommon inflammatory and ulcerative dermatosis, within the spectrum of the neutrophilic dermatoses. It usually presents as painful pustules or bullae which rapidly enlarge, producing central necrotic ulcers with overhanging, undermined violaceous borders. The etiology is unknown but there is an association with systemic disease in about 50% of cases. Most commonly, this is inflammatory bowel disease, but other related conditions include rheumatoid arthritis, leukemia, myeloma, myelodysplasia, hepatitis and, occasionally, solid tumors. The diagnosis is based clinically, with the exclusion of other causes of similar-appearing skin disease, along with supportive histologic findings.

Neutrophilic dermatitis of the hands is a recently described clinical entity, comprising Sweet syndrome, pyoderma gangrenosum, and pustular (neutrophilic) vasculitis when they involve the hands. It is rare, with less than 100 published cases. It is often associated with systemic disease, including internal malignancy. Skin involvement may be the primary event with subsequent investigations revealing the underlying condition.

There are two published reports of neutrophilic dermatitis of the hands occurring with lung cancer, one anaplastic carcinoma and one squamous cell carcinoma, and one published case of Sweet syndrome associated with adenocarcinoma of the lung. We report the first case, to our knowledge, of bilateral neutrophilic dermatitis

of the hands in a patient with known small cell carcinoma of the lung.

Hereditary Motor and Sensory Neuropathy with Agenesis of Corpus Callosum Associated with Multiple Primary Malignant Melanomas

Monica Stanciu; Mimi Thériault; Eric Gagné; Joel Claveau, Centre Hospitalier Universitaire du Québec, Québec, QC

Introduction: Hereditary Motor and Sensory Neuropathy with Agenesis of Corpus Callosum (HMSN/ACC) is a rare genetic neurodevelopmental and neurodegenerative disorder with a high prevalence in the Saguenay-Lac-St-Jean region in the province of Québec. This autosomal recessive disease of early onset is characterized by agenesis of corpus callosum and a severe, progressive sensorimotor neuropathy with various degree of mental retardation.

Case presentation: We describe a 36 year old woman with HMSN/ACC that presented with a heavily pigmented plaque noticed recently on her left foot. On examination, we noted a large irregular black plaque on the patient's left foot sole, measuring 3 cm in diameter. Dermoscopy revealed a heavily pigmented lesion with streaks and pseudopods at the periphery, dark globules and areas of regression. We also observed two other suspicious plaques on her right foot and shin. The dermoscopy of these two other lesions showed color inhomogeneity, irregular pigment network, streaks and dots suggestive of malignant melanoma. Histological examination of biopsies revealed an invasive malignant melanoma (Breslow 1,5mm) on the left sole and melanoma in situ on the right foot and shin. Genetic testing is pending. To our knowledge, this is the first reported case of multiple primary melanomas associated with HMSN/ACC.

Discussion: We searched the literature for associations between genetic disorders and malignant melanoma. Several case reports of malignant melanoma in patients with type I neurofibromatosis are found in the literature. Other examples of genetic disorders associated with malignant melanoma include Olmsted syndrome, Clouston syndrome, MEN 1 syndrome and hereditary hemorrhagic telangiectasia syndrome. No reported association of HMSN/ACC and malignant melanoma is found in the literature. Our observations combined with several examples of association of melanoma in other genetic syndromes may suggest the existence of a possible genetic link between malignant melanoma and HMSN/ACC.

Targetoid Hemosiderotic Hemangioma

Mimi Thériault;¹ Monica Stanciu;² Éric Gagné;² Joël Claveau;²

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

Introduction: Targetoid hemosiderotic hemangioma, also known as hobnail hemangioma, is a rare benign vascular tumor typically occurring on the trunk or upper and lower limbs of young to middle-aged adult. The histopathology is characteristic with dermal proliferation of vascular channels lined by hobnail endothelial

Abstracts

cells. Characteristic dermoscopic changes have just been recently described.

Case History/Methodology: A 33 year-old man presented with a warty, hyperkeratotic, pale brown papule on the anterior surface of his left knee. Dermoscopy showed a pink and whitish homogenous tumor surrounded by a discrete and partial reticular network. Reddish and bluish laggons were observed inside a reticulated whitish background. The lesion was completely excised by punch biopsy. The histology revealed a wedge-shaped vascular proliferations consisting of several thin walled vascular channels lined by hobnail shaped endothelial cells. Occasional small intraluminal papillary projections with collagenous cores were observed. As the lesion extended into the deep dermis, the vasculature was smaller and appeared to dissect between collagen bundles. Perivascular inflammation and hemosiderin deposits were prominent.

Results and Conclusion: Cutaneous benign vascular neoplasms are classified according to the cell lineage of differentiation, the nature of the proliferating vessels and the size of the involved vessels. They are further subdivided into superficial and deep categories. The main histologic differential diagnosis included lymphangioma-like variant of Kaposi's sarcoma, microvenular hemangioma, tufted hemangioma and glomeruloid hemangioma. Based on the clinical and histological findings, the diagnosis of targetoid hemosiderotic haemangioma was retained. This case beautifully illustrates the clinical, dermoscopic and histopathologic features of hobnail haemangioma.

Intravenous Immunoglobulin (IVIG) Therapy; Use in Dermatology

Zohair Tomi; Memorial University, St. John's, NL

Normal human serum contains IgG antibodies that are active against a wide spectrum of pathogens, as well as other antigens and anti-idiotypic antibodies. Anti-idiotypic antibodies are directed against the Fab portion of other antibodies and are believed to play a role in immune regulation (suppression of antibody responses) and tolerance of self; the loss or lack of development of tolerance results in autoimmune disease.

IVIG preparations should contain at least as many specific antibodies as would be found in normal human serum. Given the number of blood donors, these preparations contain a diverse array of antibodies, allowing for the recognition of many different antigens. The distribution of IgG subclasses in these polyclonal preparations is typically similar to that found in normal human serum.

Intravenous immunoglobulin products (IGIVs) are produced from a minimum of ten thousands blood donors. The pooled plasma is fractionated and purified to remove contaminants and to provide a high concentration of IgG (90%-99%) directed against foreign antigens, as well as against autoantibodies and anti-idiotypic antibodies.

IVIG was originally used to prevent infections in patients with primary immunodeficiency (PI) diseases. Usage of IVIG has now expanded to include a number of other disorders, including immune-mediated and autoimmune (autoantibody and T cell-mediated

autoimmune) diseases, systemic inflammatory diseases, as well as antibody-deficiency disorders. There has been dramatic increase of IVIG Usage in the 90's in Inflammatory / Autoimmune Neuromuscular Diseases (GBS, CIDP, MG, MS), Connective Tissue Diseases (Dermatomyositis), Solid Organ Transplantation (anti-infective, allosensitization, graft survival), Infectious Diseases (Strep A infections, C difficile), Spontaneous Recurrent Abortion, Steroid-resistant Asthma

The specific mechanisms of action of IVIG remain unclear for many of these disorders, despite IVIG being the standard of care. However, it is clear from its effects in a variety of diseases that IVIG elicits an array of biological and immunologic responses. There is growing evidence that IVIG can have multiple functions that may work in concert. Each mechanism may play a role to a varying extent in the beneficial effects of IVIG in different diseases.

The first issue to consider when prescribing IVIG is the product type; lyophilized vs. liquid products; 5% or 10% solution; cost \approx \$70/gr. The second issue is the appropriate dose; replacement therapy / dose range 400-600 mg/kg Immune modulation therapy / dose range 1-2 g/kg. The third issue is the infusion protocol.

Reported Dermatological Uses of IVIG Therapy include; pemphigus vulgaris, pemphigus foliaceus, toxic epidermal necrolysis dermatomyositis, pyoderma gangrenosum, erythema multiforme, pemphigoid gestationis, chronic urticaria, bullous pemphigoid, cicatricial pemphigoid, epidermolysis bullosa acquisita, atopic dermatitis, Kawasaki syndrome.

I took part in an advisory board on the appropriate use of IVIG in dermatology: to develop Canadian guides during Dermatology Update, Montréal, Quebec, November 2, 2005. We assessed both specialist expertise and the medical literature to determine whether sufficient published evidence exists to establish IVIG treatment recommendations in these indications. Classification of use was made in 3 categories:

Appropriate Use - First Line Therapy; Requires Future Research; Inappropriate.

References:

- Samuelsson A, et al. *Science*. 2001;291:484-486.
- Gelfand EW. *J IV Nurs*. 2000;23(5S):S14-S17.
- Gelfand E. *P&T*. April 1996:4S-6S.
- Gelfand EW. *J Allergy Clin Immunol*. 2001;108:S111-S116.
- Dalakas MC. *Muscle Nerve*. 1999;22:1479-1497.
- Kazatchkine MD, Kaveri S. *N Engl J Med*. 2001;345:747-755.

Morphology of Acute Cutaneous GVHD: a Case Report and Literature Review

Anh Tran;¹ John Goodall;²

1. University of Ottawa, Toronto, ON; 2. Division of Dermatology, Ottawa Hospitals, Ottawa, ON

Graft versus Host Disease (GVHD) is one of the most important barriers to successful hematopoietic cell transplantation, both allogeneic and autologous. It is the major cause of mortality and

morbidity for patients who underwent stem cell transplant. The clinical staging of Acute Cutaneous GVHD is classified into 4 stages. Acute cutaneous GVHD usually presents with discrete and confluent, erythematous, blanchable macules and papules, with relatively indistinct borders. We present an interesting case of acute GVHD with an ichthyosiform eruption, without the lichenoid or sclerodermatoid features of GVHD. MB, a 52 years old man, was diagnosed with Waldenstrom's macroglobulinemia in 1994. He underwent allogenic reduced intensity bone marrow transplant from an unrelated donor in December 2006. In February 2007, he developed disseminated maculopapular erythematous eruption with severe pruritis and mild tenderness. The lesions evolved to fissuring and desquamation of hands and feet, with no evidence of lichenoid and sclerodermoid eruptions. Review of literature showed a variety of morphological presentations of acute GVHD. Proper classification of GVHD subtypes and thorough inclusions of all acute GVHD presentations are necessary. Dermatologists' awareness of the expansion of GVHD morphology is important for prompt interventions to halt the disease progression.

A Granular Cell Variant of Atypical Fibroxanthoma

Diane Tran; Eric Gagné, Hotel Dieu de Québec, Quebec, QC

Introduction: Granular cell change is a non specific feature that has been described in a variety of benign and malignant cutaneous tumors. Some examples are the conventional cutaneous granular cell tumor, basal cell carcinoma, squamous cell carcinoma, melanocytic, vacular, muscular and fibrohistiocytic tumors. Some metastatic lesions, such as high grade Gravitz tumor, can also present similar characteristics and must be included in the differential diagnosis.

Observation: A 61-year old woman presented with a few months history of an erythematous, dome-shaped, ulcerated nodule located on her left cheek. The lesion was excised. The histopathology revealed a well-circumscribed ulcerated dermal tumor primarily composed of a sheet of large polygonal cells with PAS positive granular cytoplasm, admixed with few spindle and multinucleated cells. Some cells appeared more vacuolated than granular, resembling Touton cells. Cytologically, the tumor cells showed large pleomorphic nuclei with numerous mitotic figures, some of them atypical. The tumor cells were negative for S-100 protein as well as for epithelial, melanocytic, muscular and vascular markers, but they were strongly positive for CD68 and CD10.

Conclusion: These findings support the diagnosis of a granular variant of atypical fibroxanthoma. The primitive non neural granular tumor was the most difficult differential diagnosis to exclude amongst S-100 negative entities. To the best of our knowledge, only 5 such cases have been reported.

Cutaneous side Effects of Palifermin in Patients Undergoing Chemotherapy for Bone Marrow Transplantation

Irina Turchin¹; Susan Poelman¹; Yvan Rousseau²; Pierre Laneuville²; Beatrice Wang¹

1. Division of Dermatology, McGill University Health Centre, Montreal, QC;
2. Department of Hematology Oncology, McGill University Health Centre, Montreal, QC

Introduction: Palifermin, a recombinant form of keratinocyte growth factor, is an effective therapy for the prevention of oral mucositis in patients with hematologic malignancies undergoing hematopoietic stem cell transplant. Cutaneous side effects of palifermin have been reported only in the oncology literature, and include "rash", flushing, pruritus, edema, oral paraesthesias, change in taste, and tongue thickening.

Objective: To better define the cutaneous side effects of palifermin therapy in patients undergoing bone marrow transplantation.

Methods: This study was carried out at the McGill University Health Center Bone Marrow Transplantation Unit. Eligible patients who received palifermin (60ug/kg/d) for 3 days at days -13,-12,-11 and again at day 0, 1, 2 before/after their bone marrow transplant were entered into the study. Baseline dermatologic history and physical assessments were obtained prior to the first dose of palifermin, and then periodically throughout the patient's hospital stay. Follow-up dermatological assessments were performed upon hospital discharge or thereafter. This study received full approval by McGill Research Ethics Board (McGill REB # 06-024). All patients consented to the study prior to participation.

Results: A total of 7 patients participated in the study (M=4; F=3). The average age of study participants was 55 years. Multiple myeloma was the most common diagnosis among patients who received palifermin (n=6). Four out of 7 patients completed a full course of palifermin. Mucositis was prevented in 5 out of 7 patients who received palifermin. The most common palifermin cutaneous side effects observed in the study were scaly erythema, which affected mainly the upper trunk and face (n=5), and oral dysesthesia (n=2).

Conclusion: Our study confirms the observation that palifermin is effective in the prevention of mucositis in patients undergoing chemotherapy for bone marrow transplantation. The cutaneous side effects of palifermin observed in this small pilot study were mild to moderate, with a self-limited clinical course, and should not interfere with its administration.

The Use of Temporary Tattoos to Simulate Skin Disease in Medical Education: Validation and Report of a Novel Teaching Tool

Susan A. Tyler;¹ Richard G. Langley;¹ Ashley E. Sutherland;¹ Amy E. Ornstein;² Linda M. Mosher;³

1. Dalhousie University, QEII Health Sciences Centre, Halifax, NS; 2. Dalhousie University, IWK Health Sciences Centre, Halifax, NS; 3. Dalhousie University, Halifax, NS

Introduction: Dermatology is a highly visual specialty and establishment of a diagnosis requires not only careful examination and description of skin lesion morphology, but also development of analytic skills, such as pattern analysis. Although ten to fifteen percent of a family physician's consultations concern the skin, dermatology is often underrepresented in many undergraduate medical curricula. Moreover, provision of opportunities for students to examine more serious lesions, such as malignant melanoma (MM), are curtailed by prompt biopsy of the lesion in the community. To provide undergraduate students with a more realistic clinical scenario, a novel educational tool, a temporary tattoo (TT) of a digitized actual skin lesion, was developed. Subsequently, it was evaluated by 101 participants at a national medical conference where dermatologists, residents, and medical students examined simulated patients (SPs) and reported on their observations.

Methods: At the 82nd Annual Canadian Dermatology Association Conference, 81 dermatologists, 14 dermatology residents, and 6 medical students participated in this study to establish the validity of a TT simulating a MM.

Results: A correct diagnosis was made by 93.8% (76/81) of dermatologists and 91.1% of participants (92/101) overall. The TT was also evaluated as being "very realistic" on a 5 point Likert scale (4.4/5).

Conclusions: We report the development and validation of a TT with a diagnostic accuracy of 93.8% amongst dermatologists, thus supporting its potential use in undergraduate medical curricula, such as SP visits and Objective Structured Clinical Examinations. Since this novel teaching tool can simulate a variety of skin lesions, including MM, it can permit a manner of visual examination of a skin lesion on a SP, which could enhance a medical student's learning experience.

Efalizumab's Overall Effectiveness in Treating Plaque Psoriasis: Interim Data from the Canadian RESTORE Study

Ronald B. Vender;¹ Vincent C. Ho;² Richard G. Langley;^{3,4} Kim A. Papp;^{5,6} Yves Poulin;^{7,8} Neil H. Shear;^{9,1}

1. Dermatrials Research, Hamilton, ON; 2. University of British Columbia, Vancouver, BC; 3. Dalhousie University, Halifax, NS; 4. Queen Elizabeth II Health Science Centre, Halifax, NS; 5. Probit Medical Research Inc. and K Papp Clinical Research Inc., Waterloo, ON; 6. University of Western Ontario, Waterloo, ON; 7. Université Laval, Québec City, QC; 8. Centre Dermatologique, Québec City, QC; 9. University of Toronto, Toronto, ON; 10. Sun-nybrook Health Sciences Centre, Toronto, ON

Introduction: Efalizumab, a humanized anti-CD11a antibody that modulates the immune response by limiting cutaneous T-cell activation, is approved in Canada for use in adults with chronic moderate-to-severe plaque psoriasis who are candidates for systemic therapy or phototherapy. Efalizumab suppresses psoriatic inflammation by binding to CD11a to prevent T-cell activation, reactivation, and trafficking. Data from clinical trials suggest that efalizumab retains its efficacy over at least 3 years of continuous treatment. The Raptiva Evaluation of Safety and Treatment Optimization Registry (RESTORE) is a Canadian post-marketing trial that will examine the outcomes over up to four years of continuous efalizumab treatment. Here, we present the first efficacy analysis for the RESTORE study, covering the first year of data.

Methods: Data on the overall effectiveness of efalizumab were collected from RESTORE, an ongoing open-labeled registry that will contain 900 patients over the age of 18 from over 36 investigator sites in Canada. At Baseline, treatment history and patient body surface affected (BSA) were recorded, with the majority of patients having moderate-to-severe plaque psoriasis. Patients were divided into two groups: those who had initiated efalizumab treatment less than 1 month prior to enrollment (group A) and those who had initiated at least 1 month prior to enrollment (group B). Patients were then monitored for improvement based on static Physician's Global Assessment (sPGA) scores and satisfactory control of their psoriatic symptoms.

Results: Efalizumab was well-tolerated and significantly reduced patients' sPGA scores. This clinical improvement was evident in the initial weeks of efalizumab therapy and was maintained over the course of the study to date.

Conclusions: The early data from RESTORE data are consistent with previous reports documenting the long-term efficacy of efalizumab for long-term, continuous control of moderate-to-severe psoriasis.

Efalizumab's Effectiveness in Treating Plaque Psoriasis Affecting the Hands and/or Feet: Interim Subanalysis of The Canadian RESTORE Study Data

Norman R. Wasel;^{1,2} Charles W. Lynde;^{3,4}

1. Stratica Medical, Edmonton, AB; 2. University of Alberta, Edmonton, AB; 3. University of Toronto, University Health Network, Markham, ON; 4. Lynde Centre for Dermatology, Markham, ON

Introduction: Psoriasis is associated with significant physical and psychological morbidity; hand and foot involvement adds still greater physical disability and discomfort. Efalizumab, a humanized anti-CD11a antibody that modulates the immune response by limiting cutaneous T-cell activation, is approved in Canada for use in adults with chronic moderate-to-severe plaque psoriasis who are candidates for systemic therapy or phototherapy. In a recent randomized controlled trial in Latin America, 46.2% of patients on efalizumab had a Physician's Global Assessment (PGA) rating of 'clear', 'almost clear' or 'mild' for their hand and foot psoriasis after 12 weeks versus 17.9% on placebo. The four-year Raptiva Evaluation of Safety and Treatment Optimization Registry (RESTORE) trial was designed to evaluate the long-term efficacy and safety of efalizumab in psoriasis patients. We will describe the interim findings on the efficacy and safety of efalizumab in RESTORE patients with hand or foot involvement.

Methods: Individuals aged 18 years and older with chronic plaque psoriasis could be included in RESTORE. Patients received a weekly subcutaneous injection with efalizumab (1.0 mg/kg after the initial conditioning dose of 0.7 mg/kg). The primary endpoint for efficacy was the proportion who achieved or maintained Physician's Global Assessment (PGA) scores of "excellent" or "cleared" by the end. Safety assessments included the incidence and severity of treatment-emergent adverse events (AEs).

Results: We will present first-year data showing the effectiveness of efalizumab for hand and foot plaque psoriasis in RESTORE, as determined by the proportion of patients who achieved or maintained a PGA score of "excellent" or "cleared".

Conclusions: Efalizumab was shown to be effective for plaque psoriasis covering hands and feet in a recent Latin American placebo-controlled phase 3 study. Data from the Canadian RESTORE study will be presented to add to our knowledge on the efficacy of efalizumab for lesions localized on hands and feet.[endbody]

A Case of Bullous Systemic Lupus Erythematosus

Shadi T. Zari; Elizabeth O'Brien; McGill University, Montreal, QC

Bullous systemic lupus erythematosus is a rare blistering disease. We report the case of a 29 year-old female previously diagnosed with SLE who presented with an itchy vesicular eruption. Biopsy showed a subepidermal vesicular dermatitis, with a predominantly neutrophilic inflammatory infiltrate. Direct immunofluorescence of perilesional skin from the abdomen showed +2 granular fluorescence along the epidermal basement membrane against IgG only; consistent with the diagnosis of bullous SLE. The lesions resolved

when the systemic disease was controlled by oral prednisone and hydroxychloroquine. [endbody]

Cutaneous GW bodies, mRNA Degradation and RNA Interference

Jennifer M. Zee;¹ Andrea K. Bruecks;² Theophany Eystathioy;³ Marvin J. Fritzler;³ P R. Mydlarski;¹

1. Division of Dermatology, Departments of Medicine & Medical Genetics, Faculty of Medicine, University of Calgary, Calgary, AB; 2. Department of Pathology and Laboratory Medicine, University of Calgary and Calgary Laboratory Services, Calgary, AB; 3. Division of Rheumatology, Department of Medicine, Faculty of Medicine, University of Calgary, Calgary, AB

Introduction: GW bodies (GWBs) are unique cytoplasmic compartments, also known as mammalian processing bodies (P-bodies). They contain the GW182 protein, an mRNA-binding protein characterized by a canonical RNA-recognition motif (RRM) and numerous GW (glycine-tryptophan) repeats. GW182 is found to be a critical component of GWBs by serving as a scaffold or matrix protein which is key to the GWB architecture. By storing specific subsets of mRNAs, degrading mRNAs, participating in RNA interference (RNAi) and controlling the events of cell cycle and cell proliferation, GWBs may serve as important regulatory sites for normal, inflammatory and malignant skin disease.

Methods: Using standard histopathology techniques, normal skin sections were cut from paraffin-embedded tissue blocks. Tissue sections were deparaffinized and treated with antigen retrieval methods (ARM). With mouse monoclonal antibodies to GW182 epitopes, GWBs were identified on ARM-treated skin sections through indirect immunofluorescence (IIF). Fluorescence intensity was measured semi-quantitatively and GWB distribution patterns were characterized in normal human skin. To determine whether GWBs contain proteins involved in mRNA degradation and RNAi, colocalization studies were performed on a normal human epidermal keratinocyte (NHEK) cell line using monoclonal antibodies to LSm4, Xrn1, Ge-1, Ago2 and Dicer.

Results and Conclusion: In the epidermis and cutaneous appendages, GWBs were most prominent in the stratum basale and the outer root sheath (ORS) of the hair follicle, notably the bulge region. GW bodies were also observed in the sebaceous glands, the eccrine glands, the germinative matrix of the hair bulb and the apocrine glands. A select group of proteins involved in mRNA degradation and RNAi were found to colocalize with keratinocyte GWBs, including Ge-1 (85.17%), Xrn1 (18.95%), LSm4 (12.57%), Ago2 (11.45%) and Dicer (2.49%). While there appears to be microheterogeneity in the compartmentalization of cutaneous GWBs, our findings suggest that they may be preferentially involved in mRNA storage and degradation. Further investigations are required to study their significance in skin homeostasis, repair and disease

The Identification of Novel GW Bodies in Follicular Stem Cells

Jennifer M. Zee;¹ Karalee K. Shideler;¹ Andrea K. Bruecks;² Marvin J. Fritzler;³ P R. Mydlarski;¹

1. Division of Dermatology, Departments of Medicine & Medical Genetics, Faculty of Medicine, University of Calgary, Calgary, AB; 2. Department of Pathology and Laboratory Medicine, University of Calgary and Calgary Laboratory Services, Calgary, AB; 3. Division of Rheumatology, Department of Medicine, Faculty of Medicine, University of Calgary, Calgary, AB

Introduction: In 2002, unique cytoplasmic compartments were discovered and termed GW bodies (GWBs). Distinct from other organelles such as the Golgi complex, mitochondria, endosomes, lysosomes and peroxisomes, GWBs are electron-dense amembranous bodies that range in size from 100 to 300 nm. Our group initially described GWBs in the basal layer of the epidermis and the outer root sheath of the hair follicle, specifically the bulge region. As these are known sites of adult cutaneous stem cells, we carried out colocalization studies using specific epidermal stem cell markers. Herein, we identify novel GWBs in the follicular stem cells of normal human skin.

Methods: Using standard histopathology techniques, normal human scalp sections were cut from paraffin-embedded tissue blocks. The sections were deparaffinized and treated with an antigen retrieval method (ARM). Indirect immunofluorescence (IIF) was performed using mouse monoclonal antibodies to GW182, a protein specific to GWBs. Colocalization of GWBs with follicular stem cells was studied using monoclonal antibodies to the previously defined epidermal stem cell markers, cytokeratin 15 (K15), cytokeratin 19 (K19) and β_1 integrin. Microscopy was carried out on a Zeiss Axioskop2 microscope with appropriate filters.

Results and Conclusion: To our knowledge, we are the first to identify GWBs in follicular stem cells and transit amplifying cells. By storing specific subsets of mRNAs, degrading mRNAs, participating in RNA interference and controlling the events of cell cycle and cell proliferation, GWBs may play a critical role in maintaining the undifferentiated stem cell population of normal human skin. Further studies are warranted to enhance our understanding of GWBs in cutaneous stem cells and their role in normal and pathological disease states.