8:40 a.m.

TELEDERMATOLOGY IN RURAL AND REMOTE BRITISH COLUMBIA: A SURVEY OF PRIMARY CARE PROVIDERS

Michael Copley[1], Danny Guo[1], Nam Phan[2], John Pawlovich[2] and Neil Kitson[1]
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Teledermatology has been proposed as a strategy to improve dermatology access to underserved populations. One such population is in rural and remote British Columbia. To gain an understanding of teledermatology utilization and experiences in this area, we distributed a 14-question survey containing 10 questions related to the study objective. Between February 23 to June 28, 2017, 85 surveys were completed. The average age of respondents was 50.3±11.8 years. Only 57% of respondents reported having access to in-person specialist dermatologist consultation. Alternate dermatology services included store-and-forward teledermatology (46%), videoconferencing (5%), telephone consultation (52%) and in-person non-specialist dermatology services including family physicians with a special interest in dermatology (36%). The most commonly cited barriers to dermatology care were waiting times (93%) and distance required to travel (75%). Videoconferencing or store-and-forward were used “rarely” or “never” by the majority of respondents (69%) with the most common reason for this being unaware of such services (35%). The most common reason for not accessing such services was being unaware of such services (36%, n=31). Very few respondents had concerns regarding legal liability (5%, n=4) and diagnostic reliability (13%, n=11). The majority were interested in gaining new knowledge or skills from a dermatology consult (94%) and reported a preference for having a prior working relationship with the consultant dermatologist (72%). Our results demonstrate that teledermatology utilization and access patterns remain limited among primary care providers in rural and remote British Columbia, and could likely be improved by incentivizing participation and through education of both patients and providers.

Category: Early experiments with well-defined objectives/hypotheses

8:52 a.m.
OPTICAL POLARIZATION PROBE FOR SKIN CANCER DETECTION

Daniel C. Louie[1,2,3], Lioudmilla Tchvialeva[2,3], Sunil Kalia[2,3], Harvey Lui[2,3,4], Tim K. Lee[1,2,3,4]
[1]School of Biomedical Engineering, University of British Columbia
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[3]Photomedicine Institute, Vancouver General Hospital
[4]Departments of Cancer Control Research and Integrative Oncology, BC Cancer

Background and Objectives: Polarization is a property of light waves that describe their orientation. Light can be fully polarized or unpolarized, and of the many interactions between light and the skin, the depolarization of light due to optical scattering is one of the least investigated to date. Cancerous lesions exhibit unique optical topologies. Previous research has indicated that photon scatterers present in cancerous lesions may depolarize light in a manner differently than in non-cancerous lesions. Our aim is to develop an optical polarization probe for skin cancer detection (i.e. optical biopsy) that is small, low-cost, and non-invasive. **Methods:** The current prototype for this probe was constructed for under $200. It uses a small red laser diode (λ = 663 nm) with polarizing film and a 3D-printed chassis. The probe head is handheld, with a length of 200 mm and diameter of 45 mm. The laser is not harmful to the skin and cannot be felt when used. It is pulsed for 1 ms, has a diameter of 1 mm, and the measurements are taken instantaneously with the laser pulse. **Results:** The probe has been tested with skin phantoms and a pilot clinical trial. We have identified that our measured degrees of polarization have a relationship with skin roughness and there appear to be differences in the depolarization behaviour among various skin lesion types. These polarization measurements demonstrate that a relatively simple handheld device can detect optical signals that are of potential diagnostic use for skin cancer.

Category: Pilot/Exploratory Experiments

9:04 a.m.

QUANTIFICATION OF ERYTHEMA ASSOCIATED WITH CONTINUOUS VERSUS INTERRUPTED SUTURES IN FACIAL SURGERY REPAIR: A RANDOMIZED PROSPECTIVE STUDY

Ali MajdZadeh[1], Ardalan Akbari[2], David Zloty[1]
[1]Department of Dermatology and Skin Science, University of British Columbia, Vancouver, Canada. [2]Faculty of Medicine, University of British Columbia, Vancouver, Canada.

Patients are often concerned about the cosmetic appearance of scars following Moh's Micrographic Surgery (MMS), including residual erythema. However, few studies have investigated the cosmetic outcomes of continuous versus interrupted sutures, two commonly used techniques for closure of facial incisions in MMS. A randomized prospective split-scar study was devised to quantify whether continuous or interrupted sutures elicit the greatest intensity of erythema in surgical scars resulting from MMS. Following MMS, 105 patients were randomized into two groups. Depending on randomization, either the superior/medial or inferior/lateral half of the incision was sutured with continuous nylon sutures, whereas the other half was closed with interrupted nylon sutures. Post-operatively, subjects were assessed at 1 week, 2 months, and 6 months and close-up photographs of their scars were taken under comparable lighting and photography parameters. Computer-assisted image processing was utilized in all interval photographs to quantify the erythema intensity in each half of the scars. The average erythema intensity of interrupted sutures was greater than that of continuous sutures by 9.2% at 1 week ($P<0.001$) and 7.3% at 2 months ($P<0.021$), but comparable at 6 months. However, these differences were visually imperceptible in most cases, and erythema intensity differences resolved by 6 months in nearly all cases. Continuous sutures are associated with statistically significantly less erythema during early scar maturation. In most cases, the perceived clinical difference in erythema was minimal. These results help guide the choice of suturing technique to improve early cosmetic outcomes and maximize patient satisfaction throughout the healing phase.

Category: Applied/functional experiment (in vivo study).

9:16 a.m.

ASSESSING ERYTHEMA RESPONSES TO UV LIGHT USING MINI-PHOTOTESTS

Giselle (Yunxian) Tian[1,2], Harvey Lui[1,2], Jianhua Zhao[1,2], Sunil Kalia[1], Vincent Richer[1], Haishan Zeng[1,2] .

[1]Photomedicine Institute - Department of Dermatology and Skin Science, University of British Columbia & Vancouver Coastal Health Research Institute, Vancouver, Canada. [2]Imaging Unit - Integrative Oncology Department, BC Cancer Agency Research Centre, Vancouver, Canada.

Background: The selection of phototherapy starting doses can be done by determining individual Fitzpatrick phototypes or by measuring the patient's minimal erythema dose (MED) through provocative phototesting. Using conventional exposure test sizes (i.e. 8-10mm), MED testing is impractical, time-consuming and cosmetically burdensome. Nevertheless, it allows for precise customization of initial phototherapy fluences according to each patient. We hypothesize that accurate MED determination can be performed using "mini-phototests" that are approximately one tenth of the current exposure size. **Objectives**: To compare the MED using "mini" versus "conventional" exposure fields of UV radiation. **Method:** Ten healthy volunteers were tested with solar-simulated radiation using a mini (1mmx6mm, rectangular) and a conventional (d=8mm, circular) spot size. Two sets of graduated series of exposures were given on the upper inner arm. The fluence was controlled by time of exposure with geometric increments by 25%. The MED was determined at 24 hours post-exposure by clinical evaluation. **Results:** Erythema induced by mini size exposure could be visually assessed for all volunteers. The MED was found to be one grade higher (ie. 25% higher) with the mini-test as compared to the conventional exposure size. The erythema of exposed skin recovered faster for the sites receiving mini size exposure even when the applied doses were higher than for the conventional phototest. **Conclusion:** Mini-phototests appear to allow MED determination, with the added advantage of reducing the requisite overall area of exposure and duration of erythema.

Category: Pilot/exploratory experiments

9:28 a.m.

EPIDEMIOLOGICAL TRENDS OF CUTANEOUS INVASIVE AND IN SITU MALIGNANT MELANOMA IN GREATER VANCOUVER: A RETROSPECTIVE STUDY WITH RESPECT TO BRESLOW'S DEPTH, PATIENT DEMOGRAPHICS, AND ANATOMIC LOCATION

Ardalan Akbari[1], Ali MajdZadeh[2], John Liu[1], Majid Akbari[3], Ardashes Avanessian[4]
Faculty of Medicine, University of British Columbia[1]. Department of Dermatology and Skin Science, University of British Columbia[2]. Department of Pathology and Labaratory Medicine, Lions Gate Hospital[3]. Department of Oncology, Lions Gate Hospital[4]

Background: Advanced Malignant melanoma (MM) is difficult to treat. It is imperative to understand the underlying epidemiology in order to focus efforts on prevention and treatment. **Objective:** This study aims to compare and analyze the epidemiology of invasive and in-situ MM in the Greater Vancouver Area over a 13-year period. **Methods:** This study collected 524 pathology reports, through the Sunset database, regarding patients diagnosed with either invasive or in-situ MM. These reports were collected from February through July of 2003, and February through July of 2016, and are from Vancouver-General-Hospital, Richmond-Hospital, and Lions-Gate-Hospital. Patient age, sex, anatomic location, and Breslow's depth were recorded. Cases of non-cutaneous melanoma were excluded. Parametric t-test and Chi-Squared test were applied to assess for statistically significant differences in the means and proportions of 2003 versus 2016. **Results:** In 2003, 58.1% of pathology reports demonstrated invasive MM, whereas this proportion was 56.7% in 2016, yielding no statistically significant difference. Similarly, the mean Breslow's depth was 1.10mm in 2003, and 2.29mm in 2016, again demonstrating no statistically significant difference. However, the mean age of diagnosis was 60.4 in 2003, and 66.6 in 2016, whose difference was statistically significant ($P<0.001$). **Conclusion:** The ratio of invasive to in-situ MM remains comparable between 2003 and 2016, as does the Breslow's depth in invasive MM. However, further research is warranted to investigate the disparity in age of diagnosis over this period. Nevertheless, these results reinforce the need for early detection of MM and ongoing patient education about sun safety.

Category: Pilot/exploratory experiments

9:40 a.m.

TRANSLUCENCY DETECTION IN BASAL CELL CARCINOMA USING A DEEP LEARNING APPROACH

He Huang[1], Pegah Kharazmi[1], David I. McLean[2], Harvey Lui[2,3], Z. Jane Wang[1], Tim K. Lee[2,3]
[1]Department of Electrical and Computer Engineering, University of British Columbia, Vancouver, Canada [2]Department of Dermatology and Skin Science, University of British Columbia, Vancouver, Canada [3]Departments of Cancer Control Research and Integrative Oncology, BC Cancer Agency, Vancouver, Canada

Background: Translucency, a jelly-like appearance, is a characteristic and important feature for diagnosing basal cell carcinoma (BCC). Detecting translucency is therefore a key function for automated optical devices aimed at discriminate BCC from other types of skin cancers as well as benign conditions. **Objective:** To develop a deep learning method to automatically detect translucency in dermoscopic images of BCC. **Methods:** A sparse stacked autoencoder (SSAE) based framework is proposed for translucency detection. SSAE is an unsupervised deep learning method that learns the essential and distinguishing features required to replicate the input images. These features are considered as intrinsic for translucency and they can be used for the detection task. From the dataset, all images are divided into small patches (32 × 32 pixels) as translucent patches or non-translucent patches. The high-level features learned via SSAE are fed into a classifier that categorizes each image patch into translucency or non-translucency. **Result:** The translucent areas of 200 BCC images were manually segmented by an expert dermatologist. Applying the proposed SSAE network with a five-fold cross-validation to the patches, we achieved a translucency detection accuracy of 82.4%, specificity of 94.4% and sensitivity of 73.8%. **Conclusion:** We have demonstrated that the SSAE method appears to detect BCC translucency with reasonable accuracy. For the next step of our study, we plan to incorporate this method towards the diagnosis of BCC by integrating it with other feature detection functions.

Category: Early experiments with well-defined objectives/hypotheses

11:10 a.m.

AIMS (ANXIOLYTICS IN MOHS SURGERY) IN PATIENT SATISFACTION: A RANDOMIZED, DOUBLE-BLINDED, PLACEBO-CONTROLLED TRIAL.

Danny Guo[1], David M. Zloty[1], and Irèn Kossintseva[1]

[1]Department of Dermatology and Skin Science, University of British Columbia, Canada

Patient anxiety can complicate surgical outcomes by elevating blood pressure, increasing the need for post-operative pain management, and reducing overall patient satisfaction. While pre-procedural benzodiazepines are commonly used for anxiety control in Mohs surgery, only a limited number of studies have evaluated their efficacy and safety profiles. Three hundred and fifty Mohs surgery patients are randomized in a randomized, double-blinded, placebo-controlled trial of single-dose lorazepam, diazepam, alprazolam, gabapentin, pregabalin, or melatonin. Patient anxiety levels, vital signs, and cognition are measured at baseline (T0), before the first surgical level (T1), before the second surgical level (T2), and at post-op (Tf). Patient overall satisfaction is recorded at Tf. The diazepam group demonstrated significant reduction of anxiety at T1, T2, and Tf compared to the placebo group. The lorazepam, alprazolam, gabapentin, and pregabalin groups had significant anxiety reduction at T1 compared to the placebo group, while the pregabalin group also demonstrated a significant reduction at T2. Anxiety levels in the melatonin group were not different from the placebo group at any time point. Patient satisfaction was similar between all groups except melatonin, where it was reduced compared to placebo. This study shows that single-dose benzodiazepines and GABA-related medications are safe and efficacious options for achieving early anxiety control without jeopardizing patient satisfaction. Melatonin's slight deleterious effect on patient satisfaction may be associated with its sedating but non-anxiolytic properties on patients. In general, this study suggests that out-patient Mohs surgeries have an overall high level of patient satisfaction, regardless of anxiolytic usage.

Early experiments

11:22 a.m.

EVALUATING USEFULNESS AND USABILITY OF CONTENT-BASED IMAGE RETRIEVAL AS A CLINICAL DECISION SUPPORT TOOL IN DETECTION OF DERMOSCOPY IMAGES

Mahya Sadeghi[1], Parmit K. Chilana[1], M. Stella Atkins[1,2]

[1]School of Computing Science, Simon Fraser University, BC, Canada. [2]Department of Dermatology and Skin Science, University of British Columbia.

Content-Based Image Retrieval (CBIR) is an application of computer vision methods for finding similar images in large databases. One of the applications of CBIR in the dermatology domain is displaying a set of similar images with a pathology-confirmed diagnosis for a given query image. CBIR algorithms have the potential to help physicians, patients, and other users retrieve a more accurate diagnosis of skin diseases based on visually similar cases. However, to the best of our knowledge, we do not have many insights into how interactive CBIR tools are actually used and perceived by expert and non-expert users in a clinical setting. We have designed the user interface for a CBIR-based decision support to evaluate the impact of CBIR in making decisions for expert and non-expert users on dermoscopy images. Our proposed user study and method analyzes users' decisions, confidence levels, and behaviors. We also investigate the user-interface features, functionalities and how they can be designed to help users make more accurate decisions. Initial results from our pilot studies with non-expert users for a given set of annotated dermoscopy images indicate that using the CBIR interface affects user performance and timing vs. the non-CBIR interface.

Category: Pilot/exploratory experiments (for study design, hypotheses creation, etc)

11:34 a.m.

INTERPOLATION FLAPS IN THE OUTPATIENT MOHS SURGERY SETTING: PATIENT COMFORT AND SATISFACTION STUDY

Victoria Godinez-Puig[1], Irèn Kossintseva[1], David Zloty[1].
[1]Department of Dermatology & Skin Science, University of British Columbia, Vancouver, Canada.

To date, no studies have evaluated pain, anxiety and satisfaction in patients undergoing staged interpolation flaps (SIFs) under local anesthesia in the outpatient setting. Measuring such patient-reported outcomes provides direct information from the patients, and allows improvement of quality of care. The objective of this prospective cohort study was to assess pain, anxiety and satisfaction in patients undergoing SIFs by Mohs surgeons. Pain and anxiety were measured using validated Visual Analog Scales (VAS) (scores from 0 to 10) on the day of surgery (D0) through postoperative day 7, and on day of pedicle division (DD). In addition, VAS satisfaction scores were recorded on D0 and DD. Twenty-one patients requiring SIFs after clearance of skin cancer with micrographic surgery were included. On D0, mean pain (2.97 +/- 2.27) and anxiety scores (3.31 +/- 2.63) were mild. Mean pain (4.41 +/- 2.48) and anxiety (3.94 +/- 2.6) scores peaked at postoperative day 1 (D1) and were moderate. Post-operative days 2 to 7 showed a gradual and consistent decrease in pain and anxiety back to mild levels. Mean satisfaction was very high and not statistically different between D0 (9.82 +/- 4.9) and DD (9.63 +/- 6.4), (p=0.29), indicating that postoperative care and changes in facial appearance did not alter patient's satisfaction. In conclusion, SIFs performed in the outpatient setting are well tolerated. Mild to moderate pain and anxiety levels tend to peak on D1, after which they decrease to mild levels. Patient satisfaction is very high and unchanged before and after pedicle division.

Category: Early experiments with well defined objectives/hypotheses.

11:46 a.m.

INDUCIBLE T CELL KINASE (ITK) IS A PATHOGENIC DRIVER AND THERAPEUTIC TARGET FOR CUTANEOUS T CELL LYMPHOMA

Yuanshen Huang[1,2], Ivan Litvinov[3], Ming-wan Su [1], Xiaoyan Jiang [4], and Youwen Zhou[1]

[1]Department of Dermatology and Skin Science, University of British Columbia; [2]Division of Dermatology, Department of Medicine, University of Toronto; [3]Division of Dermatology, Department of Medicine, McGill University; [4]Terry Fox Lab, BCCRC

Background and objectives: Cutaneous T cell lymphoma arises from malignant proliferation of CD4+ T cells of the skin. The pathogenesis is unknown and there are no satisfactory therapies at present. The purpose of this project is to investigate the contribution of ITK upregulation to the development of this disease and its potential to become a molecular target for developing therapies. **Experimental methods**: After confirming ectopic expression of ITK in CTCL, the level of ITK expression was analyzed for association with survival outcomes. Then the expression of ITK was silenced in CTCL cells, and the resultant changes in cellular proliferation, apoptosis and immune functions were analyzed in cultured cells and in animal models. **Results**: Increased expression of ITK is directly correlated with increased mortality of CTCL patients. In addition, ITK silencing resulted in dramatically decreased cellular proliferation, increased apoptosis and normalization of immunological abnormalities of CTCL cells, both in cell culture, and in animal models. **Conclusion**: ITK upregulation significantly contributes to CTCL pathogenesis. Further, inhibiting its function efficiently abolishes the malignant and immunological abnormalities of CTCL cells, suggesting that ITK is a valuable therapeutic target for CTCL.

11:58 A.M.

REVISITING THE EFFICACY AND TOXICITY OF TOPICAL PSORALEN-ULTRAVIOLET A PHOTOTHERAPY FOR PALMOPLANTAR DERMATITIS AND PSORIASIS: AN EXPANDED REVIEW OF 673 CHARTS

Saud Alobaida[1], Mary Mankarious[1], Pegah Kharazmi[2,3], Tim K. Lee[1,2,3], Sunil Kalia[1], Harvey Lui[1,2], Vincent Richer[1]

[1] Photomedicine Institute, Department of Dermatology and Skin Science, University of British Columbia & Vancouver Coastal Health Research Institute [2] Departments of Cancer Control Research Program and Integrative Oncology – Imaging Unit, British Columbia Cancer Agency, Vancouver, Canada [3] Biomedical Engineering Program, University of British Columbia.

Background and Objectives: Dermatitis and psoriasis of the palms and soles has a significant negative impact on quality of life. Topical psoralen-ultraviolet A (tPUVA) phototherapy is an option when topical treatments have failed, but literature on tPUVA is sparse. Our objectives were to assess the efficacy and toxicity of twice weekly tPUVA after an initial treatment course (~20-40 exposures) and to identify associated clinical factors. **Methods:** This study retrospectively audited 673 charts of patients referred for tPUVA of palmoplantar dermatitis or psoriasis from 1990 to 2016. **Results:** Outcome data was not documented for 52 patients, reducing the evaluable sample to n=621. Of these, 96 (15.5%) patients dropped out during treatment, but their data was evaluated for this intent-to-treat analysis. A clear/almost clear outcome was achieved by 120 (19.3%) patients and 49.0% of patients had at least 50% improvement. Side effects were observed in 290 (46.7%), most commonly burning and erythema, but only nine patients (1.4%) interrupted treatment due to side effects. Treatment beyond the initial course resulted in 77 partial responders reaching clear or almost clear for a cumulative clear/almost clear rate of 31.7% over two treatment courses. Multivariable logistic regression analysis revealed factors associated with positive outcomes included number of treatment sessions ($p<0.001$) and absence of toxicity ($p=0.001$). **Conclusion:** tPUVA can be effective and well tolerated for inflammatory palmoplantar dermatoses, but drop-out is common. Clearance may take more than one treatment course. Commitment to multiple treatment sessions and taking steps to minimize toxicity can potentially improve outcomes.

Category: Early experiment with well-defined objectives/hypotheses

12:10 PM

LOXL3 PROMOTES MELANOMA PROGRESSION BY INCREASING CELLULAR PROLIFERATION AND TISSUE INVASION

Cherry Xue Zhang, Mingwan Su, Yabin Cheng, Yuanshen Huang, Lingling Li, Lei Yu, Laura Graziano, Magdalene Martinka, Gang Wang, and Youwen Zhou

Department of Dermatology and Skin Science, University of British Columbia

Background: Lysyl Oxidase-like 3 (LOXL3) mainly functions as an extracellular protein that induces the cross-linkages in collagen and elastin. Here we report that LOXL3 contributes to melanoma pathogenesis by promoting cellular proliferation and tissue invasion. **Experimental Methods:** Eleven primary or metastatic melanoma cell lines and tissues from normal skin, benign nevi and melanoma were utilized to evaluate the LOXL3 expression in mRNA and protein levels. Two melanoma cell lines, A375 and WM-115, were transfected with siRNAs to induce transient silence of LOXL3, for functional study *in vitro*. Furthermore, immunohistochemical stains of LOXL3 in 373 biopsies suggest the correlation between LOXL3 expression levels and patient survival outcomes. **Results:** We detected a significantly increased expression of LOXL3 on mRNA and protein levels in melanoma compared to benign nevi and normal skin tissues. LOXL3 silencing induced inhibition of melanoma cell proliferation, migration, and invasion in vitro. Tissue microarray study revealed that stronger expression of LOXL3 protein was associated with increased tumor thickness and mitosis, as well as worse prognosis in patients with primary melanoma.**Conclusion:** LOXL3 positively regulates cellular growth and invasiveness in melanoma cells, and its overexpression is associated with worse prognosis. These findings make LOXL3 a useful prognostic marker and a promising therapeutic target.

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1:00 p.m.

INSURANCE CLAIMS DATA ALGORITHMS IN A POPULATION-BASED ASCERTAINMENT OF KERATINOCYTE CARCINOMA

Thomas J.X. Zhang[1,2], Tim K. Lee[1,2], Harvey Lui[1,2], Youwen Zhou[1], Christina Han[1], Brian Kunimoto[1], Sunil Kalia[1,2]
[1]Department of Dermatology and Skin Science, University of British Columba
[2]Photomedicine Institute, Vancouver Coastal Health Research Institute

Background: Keratinocyte carcinomas, namely basal cell and squamous cell carcinoma, are the most common skin malignancies. Despite a high morbidity and a decreased quality of life, keratinocyte carcinomas are excluded from most cancer registries. Current proposed administrative health insurance claims-based algorithms to ascertain these skin cancers lack completeness of identifying disease prevalence in the general population. ***Objective***: To propose and test the validity of Medical Services Plan (MSP) claims-based algorithms in ascertaining keratinocyte carcinoma cases. ***Methods:*** This retrospective study uses patient charts and MSP health insurance claims data from 5 dermatologists caring for keratinocyte carcinoma patients in British Columbia (BC), Canada. Adult patients with keratinocyte carcinoma between the period of January 1, 2014, to December 31, 2016 were abstracted for the MSP diagnostic and service codes as well as the prescribed medications. In total, 1392 patient chart-reviews and abstractions were completed (734 randomly abstracted cases, 658 skin cancer specific cases). Various claims-based algorithms were proposed, and the sensitivity, specificity, positive predictive value, and negative predictive value of each algorithm was calculated. ***Results:*** The highest performing algorithms included most procedural codes and prescribed medications relevant in treating keratinocyte carcinoma, with the all-procedures and medications-inclusive algorithm achieving a high sensitivity, specificity, positive predictive value, and negative predictive value of 97.2% (95% CI: 95.8-98.6), 96.4% (94.9–97.9), 86.8% (84.1–89.5), and 99.0% (98.2-99.8), respectively. ***Conclusion:*** Claims-based algorithms using MSP diagnostic and service codes and prescription treatments can be utilized as a surrogate to ascertain keratinocyte carcinoma with positive detection rates that exceed 95%.

Category: Early experiments with well-defined objectives/hypotheses

1:12 p.m.

CHARACTERIZING THE IMMUNOPHENOTYPE OF IMMUNE CHECKPOINT INHIBITOR INDUCED PSORIASIS

Touraj Khosravi-Hafshejani[1], and Dr. Jan P. Dutz[2]

[1]University of British Columbia, Department of Undergraduate Medical Program, Faculty of Medicine
[2]University of British Columbia, Department of Dermatology and Skin Science

Immune checkpoint inhibitors (ICI) are a novel class of anti-cancer medications for the immunotherapy of metastatic melanoma. These antibodies inhibit negative regulators of T-cell function that exist on both immune and tumor cells. However, with attenuation of immunologic hemostasis and T-cell self-tolerance, autoimmune toxicities can develop known as immune-related adverse events (IRAE). Cutaneous adverse effects are the most common IRAEs induced by ICIs. Few reports have described psoriatic lesions in patients under ICI therapy. Our aim is to characterize the immunophenotype of ICI induced psoriasis. The antimicrobial peptide, LL-37, is an autoantigen that induces IL-36 expression by keratinocytes in psoriasis. Together with the TNFα/IL-23/IL-17/IL-22-axis, IL-36 perpetuates psoriatic inflammation. Antimicrobial peptide, IL-26, has also emerged as a key player in psoriasis development via exaggerated IFN-α induction. Skin biopsies were obtained from two patients with ICI induced psoriasis and two patients with psoriasis vulgaris. Immunohistochemistry was performed using antibodies against LL-37, IL-36, IL-26 and MXA. The clinical and histological evaluation of the patients treated with ICI was consistent with small plaque psoriasis. The expression of MXA in keratinocytes and IL-26 in dermal and epidermal infiltrates were similar in the two groups. LL-37 was expressed in all layers of the epidermis, whereas IL-36 was most prominent in the upper epidermis. There was increased expression of these cytokines in ICI induced psoriasis. This is the first study to describe the immunophenotype of ICI induced psoriasis and suggests a similar signalling pathway to that of psoriasis vulgaris. This may have implications for future therapeutic strategies.

Category: Early experiments with well defined objectives/hypotheses

1:24 p.m.

INSURANCE CLAIMS TO ASCERTAIN PSORIAISIS PATIENTS SEEKING MEDICAL CARE IN BRITISH COLUMBIA

Harpreet Pangli,[1,2] Jan Dutz,[1] Harvey Lui, [1,2] Christina Han,[1] Brian Kunimoto,[1] Sunil Kalia[1,2]

[1]Department of Dermatology and Skin Science, University of British Columbia. [2]Photomedicine Institute, Vancouver Coastal Health Research Institute

Background: Psoriasis is a chronic immunologic integumentary condition characterized by cutaneous inflammation and epidermal hyperproliferation. To determine the burden of this condition and to conduct population-based research, surrogates need to be validated. This pilot study aims to determine whether claims submitted to British Columbia's Medical Services Plan (MSP) from a convenience sample of physicians can be used as a surrogate for adults accessing care for psoriasis. **Methods:** Retrospective analysis of MSP claims data and charts (the "gold standard") was conducted using a convenience sample of physicians who care for patients with psoriasis (ICD-9: 696 Psoriasisiform disorders). As secondary verification of data, procedures (UVA, UVB, LN) and prescribed medications generally associated with these conditions were reviewed. **Results:** The sensitivity and positive predictive value of using ICD-9 696 coding to ascertain psoriasis cases was 96.8% (95%CI: 95.1-98.2%), and 90.4% (95%CI: 89.1-91.6%), respectively. The most common treatment modality was topical therapy, in particular topical steroids (90.8% of patients). Less than 20% of patients received phototherapy or systemic agents for treatment of their psoriasis. **Conclusion:** Insurance claims data is an appropriate surrogate to identify the diagnosis and burden of psoriasis cases in British Columbia.

Pilot/exploratory experiments

1:36 p.m.

A PROSPECTIVE STUDY OF PREDICTORS OF ADHERENCE TO PHOTOTHERAPY

Ian Tin Yue Wong, Abdulmohsen Altaleb, Harvey Lui, Vincent Richer, Sunil Kalia

Department of Dermatology and Skin Science, University of British Columbia, Photomedicine Institute, Vancouver Coastal Health Research Institute

Background: Treatment satisfaction is a critical patient-reported outcome that has not been prospectively studied in relation to phototherapy adherence. **Objectives:** To compare the baseline demographic and clinical characteristics of adherent versus non-adherent patients with psoriasis (Ps) or atopic dermatitis (AD) receiving phototherapy and to correlate these with patient satisfaction. We aim to describe patient satisfaction and to identify positive vs. negative aspects related to phototherapy adherence. **Methods:** Starting from July 2017, patients with either Ps or AD receiving phototherapy at the Skin Care Centre were enrolled with a target of 250 participants. Adherence was defined as attending phototherapy sessions twice weekly for a minimum of 20 sessions. At 12 weeks follow up, treatment satisfaction, clinical data (mPASI and mEASI), patient-specified factors related to phototherapy were collected. **Results:** To date 16 patients (7 Ps, 9 AD) have been enrolled; 3 patients were lost to follow up (1 Ps, 2 AD). At 12 weeks follow up, our preliminary findings show that for adherent patients treatment satisfaction may be related to the tolerability of phototherapy side effects. Amongst adherent patients, access to “parking” and “time” appear to be the most negative aspects, whereas “getting better” from their skin condition is the most positive factor. **Conclusion:** Preliminary results demonstrate some common features for phototherapy adherence.

Category: Early experiments with well-defined objectives/hypotheses

1:48 p.m.

CROSS-SECTIONAL REVIEW OF REFERRALS TO THE VANCOUVER GENERAL HOSPITAL DERMATOLOGY RAPID ACCESS CLINIC IN 2016

Jessica Dunkley, Kristen Sali, Vincent Richer

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

The Dermatology Rapid Access Clinic (RAC) at Vancouver General Hospital (VGH), runs one half-day per week and provides urgent dermatology care to patients referred primarily from VGH. A retrospective chart review of all patients seen in 2016 was performed using Vancouver Coastal Health's electronic medical record (PCIS). Data was collected to assess proportion of new cases seen, reasons for referral, wait time, and diagnosis by dermatologists. There were 663 visits in 2016; 64.9% were new referrals and 35.1% were follow-up visits. The ER was the main source of referrals (48.1%), followed by Internal Medicine and subspecialties (30.9%). The most common reason for referral was 'rash' (40.8%) followed by 'skin lesion' (16.8%). The overall median wait time to be seen at the clinic once the referral was entered into PCIS was 16 days. For patients referred by the ER, the median wait time was 20 days from the time of patient referral compared to 13 days from the time when the referral was entered into PCIS. The most common category of dermatological diagnosis was "dermatitis/eczema" (36.6%). The objective of the RAC is to provide appointments within two weeks and the median wait time for patients referred to RAC from the ER is 20 days. Postulated contributing factors to the long delay include high number of follow-up visits, administrative delays, shortage of community dermatologists and limited level of comfort of non-dermatologist physicians in diagnosis and management of common skin conditions such as dermatitis.

Category: (2) Early experiments with well-defined objectives/hypotheses

2:00 p.m.
PROPERTIES OF SUNSCREEN INFLUENCE ITS APPLICATION

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Skin cancer is associated with significant rates of morbidity and mortality, and one preventative measure against skin cancer is the use of sunscreen. A better understanding of which sunscreen attributes are most important to the public, and which may account for their use or disuse, may help health practitioners and public health initiatives to promote the sun protection methods that are most appealing to the public. The objective of this study is to assess the public's sunscreen preferences by determining the relative importance of seven attributes of sunscreen: white film; greasy feeling; risk of mild skin side effects; unpleasant smell; lifetime risk of skin cancer; yearly risk of sunburn; or cost. Four versions of a discrete choice experiment survey were distributed to 244 dermatology patients at the Skin Care Centre in Vancouver, British Columbia, Canada. Each survey had 10 choice sets which described hypothetical sunscreens. Participants were asked to decide between using a hypothetical sunscreen or no sunscreen, and to indicate whether they would wear the sunscreen "every day," "most days," "some days," or "never." In this survey, when deciding whether to use sunscreen some of the time ("every day," "most days," "some days") or not at all ("never"), physical attributes of sunscreen, such as white film, were important deterrents against sunscreen use. Participants' sunscreen preferences indicate that the cosmetic aspects of sunscreen use, including a white film on the skin, may deter individuals from using sunscreen as a sun protection method.

Category: Early experiments with well defined objectives/hypotheses