F078 - Late-breaking Research: Clinical Studies/Pediatric

Saturday, March 2 from 3:30 pm - 5:30 pm
Room 154A

3:30 pm - 3:40 pm

11121 - A Melanoma Diagnostic Accuracy Study, Part I / Alexander Nikolas MacLellan, BSc

Background: Non-invasive imaging techniques have been developed to facilitate the early diagnosis of melanoma, including multispectral instrumentation (MelaFind®), Raman spectroscopy (Verisante AuraTM), and dermatoscopic algorithms (FotoFinder®). Previous studies have reported the diagnostic accuracy of individual instruments to clinical examination, but, to our knowledge, a comparative, prospective diagnostic accuracy study including all machines compared has not been reported.

Type of Study: Investigator initiated, non-industry sponsored, peer reviewed prospective diagnostic accuracy study.

Methods: We recruited 201 Atlantic Canadian patients from dermatology and family medicine clinics. 215 lesions were assessed clinically with dermoscopy by one of two dermatologists. Lesions were assessed using non-invasive techniques and teledermatology software (DERMENGINETM MetaOptima). Sensitivity and specificity for concordant skin lesion diagnoses were calculated for the following, measured against histopathological diagnosis (gold standard): MelaFind®, FotoFinder®, Verisante AuraTM, in-person diagnosis and teledermoscopic diagnosis.

Results: MelaFind® had a sensitivity of 82.5% and specificity of 52.4%. FotoFinder® had a sensitivity of 82.8% and specificity of 39.0%. Verisante AuraTM had a sensitivity of 21.4% and specificity of 86.2%. In-person melanoma diagnosis had a sensitivity of 75.0% and specificity of 80.5%. Teledermoscopist diagnosis had a sensitivity of 89.1% and specificity of 68.7%. The local dermatologist had 98.4% sensitivity and 27.4% specificity in deciding whether to excise a suspicious lesion. Combining in-person and teledermoscopic decisions to select lesions to excise, the sensitivity was 100%.

Conclusion: The low specificity of these machines indicates that they cannot replace a dermatologist's clinical experience in choosing which lesions to excise. However, their high sensitivity may support their use as screening tools.

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F055 - Late-breaking Research: Basic Science/Cutaneous Oncology/Pathology

Saturday, March 2 from 9:00 AM — 11:00 AM
Room 101

3:40 pm -3:50 pm

11402 - Disparities in Melanoma Skin Cancer Outcomes: Survival in Patients of Hispanic Origin / Shaunak Patel, BS

Background: Hispanics are the largest ethnic minority in the US, and vary widely in their origins. Studies have shown that health outcomes differ between hispanic subpopulations [1,2,3]. This study analyzed outcomes of melanoma skin cancer in Hispanic populations in the United States.

Study type: Retrospective Cohort Study

Methods: Melanoma cases from the Surveillance, Epidemiology and End Results database were used in this analysis. All-cause and cause-specific mortality risk were assessed for Hispanics as whole, and for individual subpopulations using adjusted cox regression. Adjusted covariates included: race, age, sex, marital status, grade, summary stage, laterality, use of surgery, radiation, chemotherapy and county attributed median family income.

Results: 281,037 cases with an average follow-up time of 102.35 (SD 95.17) months were included in the analysis. 275,357 identified as non-Hispanic, while 5,680 identified as Hispanic. Hispanics had a significantly higher all-cause mortality risk (HR, 1.259; $p < .001$) and cause-specific mortality risk (HR, 1.387; $p < .001$) compared to non-Hispanics. Of the 6 specified subpopulations, only the “Mexican” (HR, 1.560; $p < .001$), “Puerto Rican” (HR, 1.663; $p < .001$) and “Other Spanish Origin” (HR, 1.331; $p = .002$) groups displayed a significantly higher all-cause mortality risk compared to non-Hispanics. The “Mexican” (HR, 1.839; $p < .001$), “Puerto Rican” (HR, 2.186; $p < .001$), “South/Central American” (HR, 1.256; $p = .011$) and “Other Spanish Origin” (HR, 1.469; $p = .002$) groups displayed a significantly higher cause-specific mortality risk compared to non-Hispanics.

Conclusion: Mortality-risk in Hispanics with melanoma skin cancer differs between subpopulations. Understanding such health disparities is critical to optimizing clinical outcomes in high-risk groups.

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F055 - Late-breaking Research: Basic Science/Cutaneous Oncology/Pathology

Saturday, March 2 from 9:00 AM — 11:00 AM

Room 101

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F055 - Late-breaking Research: Basic Science/Cutaneous Oncology/Pathology

Saturday, March 2 from 9:00 AM — 11:00 AM
Room 101

3:50 pm - 4:00 pm

10087 - Impact of Teledermatology on the Accessibility and Efficiency of Dermatology Care in an Urban Safety-Net Hospital / Adam Zakaria, BA

Background: Teledermatology enables dermatologists to remotely triage and manage their patients. Previous analyses of teledermatology systems have demonstrated improved patient access, but it remains unclear whether teledermatology leads to greater clinical efficiency. To address this gap, our group created a direct efficiency measure to analyze the teledermatology system at Zuckerberg San Francisco General Hospital and Trauma Center (ZSFG).

Type of Study: Retrospective, descriptive analysis

Methods: The patients in our pre-teledermatology sample (June – December 2014) were scheduled for in-person clinic visits. The patients in our post-teledermatology sample (June - December 2017) were triaged through the teledermatology system and only received a clinic appointment if they could not be managed by their referring provider with teledermatology recommendations. Our measures of accessibility were patient wait times for live clinic and total patient cases handled. Our measures of efficiency were number of cases handled per dermatologist-hour and percentage of referrals managed without a live visit. Two-tailed t-tests were performed for each measure.

Results: Our analysis captured 11,586 dermatology patients. After implementation of teledermatology, patient wait times decreased significantly (84.6 days vs. 6.7 days; $p < 0.001$), total cases handled per month increased significantly (754 vs. 902; $p = 0.008$), and number of cases handled per dermatologist-hour increased significantly (2.27 vs. 2.63; $p = 0.010$). In the post-teledermatology period, 61.8% of teledermatology consults were handled without a live visit.

Discussion: The dermatology service at ZSFG was both more accessible and more efficient in the post-teledermatology period, suggesting that capitated health care settings can benefit from the implementation of a teledermatology system.

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F055 - Late-breaking Research: Basic Science/Cutaneous Oncology/Pathology

Saturday, March 2 from 9:00 AM — 11:00 AM

Room 101

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F055 - Late-breaking Research: Basic Science/Cutaneous Oncology/Pathology

Saturday, March 2 from 9:00 AM — 11:00 AM
Room 101

4:00 pm - 4:10 pm

11324 - Pregnancy-Related Adverse Events on Isotretinoin from 1997-2017 / Sean Singer

Background: The iPLEDGE program was initiated in 2006 to prevent fetal exposure to isotretinoin by placing stringent requirements on patients and physicians.1 Despite these efforts to reduce teratogenesis, the scope of pregnancy-related adverse events from isotretinoin exposure is unknown.

Type of Study: Retrospective analysis of FDA reports of pregnancy-related adverse events to isotretinoin from 1997-2017 using the FDA Adverse Event Reporting System (FAERS), a publicly available database of medication adverse events

Methods: FAERS compiles adverse event reports using a coding thesaurus of reaction terms. We sorted these unique reaction terms into broader categories: Pregnancy, Abortions, Fetal Defects. Frequency of events in each category was counted by year and age-group.

Results: A total of 6,440 pregnancies on isotretinoin were reported from 1997-2017. Reporting of all pregnancy-related adverse events peaked in 2006 (1053) before decreasing to 285-347 annual reports from 2011-2017. Majority of reports (76%) occurred in 15-30 year-olds. Abortions peaked in 2008 (302), with a range of 44-87 yearly reports from 2011-2017. Most (80%) fetal defects were reported before iPLEDGE, with 0-4 annual cases after 2008.

Conclusion: Reporting of all pregnancy-related adverse events on isotretinoin increased at or shortly following the initiation of iPLEDGE in 2006. Since then, reports of pregnancies, abortions and fetal defects have declined. Explanations include increased use of contraception2-4, the impact of the iPLEDGE monitoring program, and reporting fatigue over time. Despite iPLEDGE, reports of pregnancies and abortions have persisted in recent years warranting research into efficacy of iPLEDGE and new strategies to prevent fetal exposure.

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F055 - Late-breaking Research: Basic Science/Cutaneous Oncology/Pathology

Saturday, March 2 from 9:00 AM — 11:00 AM
Room 101

4:10 pm - 4:20 pm

11412 - Underrepresentation of dermatologic disease in the risk-adjustment model used by the Centers for Medicare and Medicare Services
/ Benjamin Kahn, BA

Risk adjustment models change compensation based on patient risk in order to counterbalance selection bias in value-based reimbursement payment models. More than 80% of dermatologists who treat Medicare patients will be compensated through the Merit-based Incentive Payment System (MIPS). MIPS payments are risk adjusted using the ubiquitous Hierarchical Condition Category model developed by the Centers for Medicare and Medicaid Services (CMS-HCC). CMS-HCC ranks dermatology 52nd of 54 specialties in terms of average patient risk. This is incongruent with other risk assessment models.

We compiled all dermatologic diagnoses that increase patient risk scores for the current CMS-HCC model, and evaluated their coverage of skin disease categories from the American Academy of Dermatology's Burden of Skin Disease (BOSD) initiative. The BOSD initiative roughly stratified skin disease cost per patient through cost versus prevalence ratios.

The CMS-HCC risk adjustment model adequately risk adjusts for some skin disease categories, such as cutaneous lymphomas, ulcers, melanoma, connective tissue disorders, wounds and burns, and drug eruptions. The CMS-HCC risk adjustment model does not adequately cover many prevalent and costly sources of dermatologic risk, including keratinocyte carcinomas, psoriasis, bullous disease, vitiligo, and congenital dermatologic disease. Under recognition and adjustment for sources of dermatologic risk will lead to under compensation for dermatologists. Dermatologists focused on diagnoses that are not accounted for by CMS-HCC will be particularly disadvantaged. More accurate capture of dermatologic risk needs to be incorporated into the CMS-HCC model in order to promote accurate recognition and compensation of dermatologists in the new risk-management payment model landscape.

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F055 - Late-breaking Research: Basic Science/Cutaneous Oncology/Pathology

Saturday, March 2 from 9:00 AM — 11:00 AM
Room 101

4:20 pm - 4:30 pm

11127 - Genotype-phenotype correlation of cutaneous vascular stain; When a difference makes a difference / Olivia Davies, BS

Background: Recent advances in next generation sequencing (NGS) have allowed for the discovery of post-zygotic variants in vascular syndromes, classification schemes have not yet correlated the genotypic mutations with phenotype.1,2 We hypothesize that this correlation will allow for better prognostication and treatment of patients.

Methods: This was a sub-analysis of a multi-institutional vascular anomalies cohort. 60 patients met the inclusion criteria: presence of vascular stain, availability of clinical photos, and an NGS-identified pathogenic variant. DNA extracted from fresh tissue or paraffin underwent high-depth targeted NGS using a panel enriched for loci representing genes associated with cancer pathways. Variants with a VAF of ≥1% were evaluated for pathogenicity. Photos were examined by vascular anomalies experts to describe phenotype.

Results: Genotype-phenotype correlations were identified for GNAQp.183, GNA11p.183, and PIK3CA hotspots, however, there was significant phenotypic variation observed in patients with mutations in less common variants. We found that pathogenic variants predicted to highly activate the cell cycle signaling resulted in highly saturated, redder, more sharply delineated vascular stains, while variants predicted to mildly activate the cell cycle resulted in pink, poorly delineated, reticulated vascular stains. We also found that genotype-phenotype correlation of vascular stains varies significantly by both anatomic location and patient ancestry.

Conclusion: Genotyping has significantly advanced our understanding of vascular syndromes and will continue to be an extremely useful research tool; however the clinical utility has not yet been determined. The degree of cell cycle activation caused by specific mutations likely correlates with disease severity and can be seen phenotypically.

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F055 - Late-breaking Research: Basic Science/Cutaneous Oncology/Pathology

Saturday, March 2 from 9:00 AM — 11:00 AM
Room 101

4:30 pm - 4:40 pm

11227 - Infantile Hemangioma Ulceration in the Era of Beta Blockers / Esteban Fernandez Faith, MD

Background: ulceration is the most common complication of infantile hemangiomas (IH) (1). Despite being common, evidence regarding optimal management is lacking (2, 3, 4).

Type of study: retrospective cohort study.

Methods: study period between 2012 and 2016. Clinical characteristics, treatment interventions and course are analyzed. The primary end point is time to IH ulceration healing.

Results: an interim analysis of 164 patients is presented, composed of 78% females with a median age of ulceration of 16.4 weeks.

Prior to the development of ulceration, treatment was started for the IH in 25 patients (15%). A significant minority of patients (n=7) developed ulceration while on systemic beta blockers.

Three treatment groups were considered: wound care alone, timolol and propranolol. There was no statistically significant difference in the median time to heal between the treatment groups; although a trend towards faster healing was noted in the timolol and propranolol groups. Among patients who were treated with propranolol, a statistically significant faster healing time was achieved in patients who received a dose lower than 2 mg/kg/day (40 days) compared with patients who received higher doses (59.5 days).

There were no significant associations with time to heal and other independent variables (age, hemangioma characteristics and ulceration characteristics).

Conclusions: while beta-blockers represent an effective treatment for IH ulceration, a subset of patients continues to experience prolonged healing times and this complication can develop during active beta-blocker therapy. Treatment with beta blockers showed a trend towards a faster healing time. Treatment with propranolol at <2 mg/kg/day resulted in faster healing time of ulceration in this cohort.

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F055 - Late-breaking Research: Basic Science/Cutaneous Oncology/Pathology

Saturday, March 2 from 9:00 AM — 11:00 AM
Room 101

4:40 pm - 4:50 pm

11383 - Off-label Use of Dupilumab for Pediatric Patients with Atopic Dermatitis: A Multicenter Retrospective Review / Sean Igelman

Background: Dupilumab was USFDA approved 03/25/17 to treat adults with moderate-to-severe atopic dermatitis (AD). While industry-sponsored clinical trials in children are progressing, only a limited number can participate.

Type of Study: Multi-center, retrospective

Methods: Record review from patients age <18 years prescribed dupilumab for AD.

Results: Pediatric dermatologists from 7 centers reviewed data from 103 patients prescribed dupilumab for AD. Insurance coverage was denied to 8 patients (7.8%). Drug dosing was variable. The mean age at dupilumab initiation was 13.3 +/- 3.85 years (range 3.33 to 18.0); 45% were female. Prior systemic medications included oral corticosteroids (n = 67), methotrexate (n = 58), cyclosporine (n = 38), azathioprine (n = 9), mycophenolate mofetil (n = 11), and IVIG (n = 9). Baseline and follow up IGA scores (5-point scale) were available for 80 treated patients. Mean follow up was approximately 9 months, (range 1-19 months). Baseline, IGA were mild (n = 1, 1.3%), moderate (n = 22, 27.5%), and severe (n = 57, 71.3%). At follow up, 70% experienced ≥2-point IGA improvement; 22.5% reported 1-point improvement and 7.5% experienced no improvement. Adverse events (AEs) were unusual among the 95 treated patients: 1 viral upper respiratory infection, 2 injection site reactions, 8 cases of new or worsening conjunctivitis, and 6 facial eruptions. No AEs interrupted dupilumab treatment.

Conclusion: This review supports dupilumab safety and efficacy in children with moderate-to-severe AD. Despite off-label use, access to dupilumab was generally approved.

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F055 - Late-breaking Research: Basic Science/Cutaneous Oncology/Pathology

Saturday, March 2 from 9:00 AM — 11:00 AM
Room 101

4:50 pm - 5:00 pm

11181 - Mental health impairment among children with eczema: a cross-sectional analysis of the 2013-2017 National Health Interview Survey / Joy Wan, MD, MSCE

Eczema has been linked to depression, anxiety, and attention deficit hyperactivity disorder, however its impact on mental health overall is not well-understood. We performed a cross-sectional study of children aged 4-17 in the 2013-2017 U.S. National Health Interview Survey. The presence of eczema was reported by a caregiver, who also completed a short Strengths and Difficulties Questionnaire (SDQ), a screening questionnaire for children that assesses mental health symptoms and impact. The primary outcome, mental disorder with mild or severe impairment, was derived from the SDQ score. Data were weight-adjusted to account for the survey design. A weighted total of 6,807,687 (11.8%) of 57,726,856 children reported eczema in the last 12 months. Compared to those without eczema, children with recent eczema had higher prevalence of mental disorder with any impairment [26.7% (95% CI 25.1-28.3) vs. 17.7% (95% CI 17.2-18.2); p<0.001] including mental disorder with severe impairment [10.9% (95% CI 9.9-12.1) vs. 6.2% (95% CI 5.9-6.5); p<0.001]. In ordinal logistic regression analysis adjusted for sex, age, and other socioeconomic factors, the odds ratio of mental disorder with mild or severe impairment was 1.52 (95% CI 1.39-1.67). Results were similar when stratified by the presence of comorbid asthma or attention deficit hyperactivity disorder. Among children with severely impairing mental disorder, only 53.5% (95% CI 48.5-58.5) had seen a mental health professional in the last year. Our findings suggest that children with eczema are at greater risk for mental health impairment independent of socioeconomic factors, and providers should ensure affected children receive appropriate treatment.

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F055 - Late-breaking Research: Basic Science/Cutaneous Oncology/Pathology

Saturday, March 2 from 9:00 AM — 11:00 AM
Room 101

5:00 pm - 5:10 pm

11333 - Trends in Spending for Combination Acne Products: Rising Costs and Potential Savings / David Li, BS

Background: Combination prescription acne products may be more effective in treating acne than individual products but are expensive compared to their component products.(1,2) In this study, we examine the utilization trends for combination acne products and model potential savings achieved through drug substitution.

Type of Study: Retrospective Cost-Analysis

Methods: We analyzed the Medical Expenditure Panel Survey (1996-2016), a national database that records the utilization of prescription medications.(3) The annual number of users and spending for combination acne products was calculated. The National Average Drug Acquisition Cost database(4) was used to determine medication prices for combination drugs, and we modeled the cost savings achieved from substitution using component generics matched by strength and formulation. All spending measures were inflation-adjusted to 2016 USD.

Results: Combination acne product users were most commonly younger than 18 (23%), female (55%), and white (83%). Drugs comprising the greatest proportion of prescribed combination acne drugs were Benzamycin (81%) from 1996-2002, Benzaclin (46%) from 2003-2010, Ziana (25%) in 2011, and Epiduo (40%) from 2012-2016, with expenditures rising steadily from $82 million in 1996 to $487 million in 2016. Based on median pricing and utilization data from 2013-2016, we determined that substitution with component generics may achieve annual savings of $306 million.

Conclusion: New combination acne drugs replace older drugs upon market entry despite limited data on comparative efficacy among combination products. Considering the cost savings from substitution using multiple, single component generics, further research is needed to justify the costs attributable to the utilization of combination acne drugs.

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F055 - Late-breaking Research: Basic Science/Cutaneous Oncology/Pathology

Saturday, March 2 from 9:00 AM — 11:00 AM
Room 101

5:10 pm - 5:20 pm

11251 - CAMP-1 (Cantharidin Application in Molluscum Patients) and CAMP-2: Phase 3, Randomized, Double-Blind, Placebo-Controlled, Pivotal Studies Investigating VP-102, a Drug-device Combination Containing a Novel Topical Formulation of Cantharidin, for the Treatm /
Lawrence Eichenfield, MD

Background: Molluscum contagiosum (MC) is a common pediatric skin infection caused by a DNA poxvirus. Cantharidin is a topical vesicant routinely used to treat MC. Despite prevalent use, cantharidin is not FDA approved and lacks high-quality clinical evidence supporting its safe and effective use in MC.

Study Type: Randomized, double-blind, placebo-controlled Phase-3

Methods: Subjects ≥2 years with MC were randomized 3:2 to treatment with VP-102, single-use applicator containing a novel 0.7% w/v cantharidin solution; or placebo, every 21 days for up to 4 treatments or complete lesion clearance. Lesion counts and adverse events (AEs) were documented at each visit.

Results: For CAMP-2, subjects were balanced between treatment arms with a mean age of 7.4 (range=2-60;n=150) and 7.3 (range=2-54;n=112) years for VP-102 and placebo, respectively. There were no SAEs. The most common AEs in both arms were expected skin reactions (e.g., vesicles, pruritus, erythema) which were reported in 143 (95%) subjects on VP-102 and 68 (61%) subjects on placebo. The primary endpoint was met with 54% (81/150) of VP-102 treated subjects versus 13% (15/112) of placebo subjects achieving complete clearance at Day 84 ($p<0.0001$). VP-102 was more effective at reducing mean lesion counts compared to placebo, with 83% reduction at Day 84 versus 19% for placebo. Complete clearance on Day 63 and Day 42 (secondary endpoints) demonstrated superiority versus placebo. Data from the identical CAMP-1 trial will also be presented.

Conclusions: Treatment with VP-102 was well-tolerated and resulted in significantly reduced lesion counts and complete clearance of MC lesions in 54% of subjects.

REFERENCES

NA

F055 - Late-breaking Research: Basic Science/Cutaneous Oncology/Pathology

Saturday, March 2 from 9:00 AM — 11:00 AM
Room 101

5:20 pm - 5:30 pm

11356 - Use of antibiotics in dermatology surgery from 2008-2016. / John Barbieri, MD, MBA

Introduction: While overall oral antibiotic use among dermatologists is decreasing, there has been an increase in use associated with dermatologic procedures during the past decade. This higher antibiotic utilization may increase antibiotic-associated adverse events and promote the development of antibiotic resistance.

Methods: A repeated cross-sectional analysis of oral antibiotic prescriptions associated with encounters for surgical procedures performed by dermatologists was conducted using the Optum© Clinformatics® DataMart de-identified commercial claims database from 2008-2016. Dermatology clinicians were identified by their National Uniform Claim Committee taxonomy codes, encounters for surgical procedures were identified by Common Procedure Terminology codes, and courses of oral antibiotics prescribed by these clinicians were identified by their National Drug Codes.

Results: Between 2008 and 2016, oral antibiotic prescribing increased from 2.9% to 4.4% of visits for benign excisions, from 4.2% to 6.3% of visits for malignant excisions, and from 9.9% to 13.8% of visits for Mohs. Oral antibiotic prescribing was more common among procedures involving a flap or graft and among patients with diabetes, female patients, and younger patients. There was greater than two-fold variation in antibiotic prescribing rates across geographic census divisions. If higher prescribing divisions were to develop antibiotic prescribing rates similar to lower prescribing divisions, antibiotic use could be decreased by over 50%.

Conclusions: Oral antibiotic prescribing by dermatologists associated with benign excisions, malignant excisions, and Mohs surgery is increasing over the past decade and there is substantial geographic variation. These findings highlight that there may be opportunities to optimize antibiotic use associated with dermatologic procedures.

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F055 - Late-breaking Research: Basic Science/Cutaneous Oncology/Pathology

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