The association of patient income levels and prescribing patterns of psoriasis therapies in the medical expenditure panel survey

Si Li1, Pengyu Wang1,2,3,4,5,6,7,8,9,10,11,12 and BT Carron1,2,3,4,5,6,7,8,9,10,11,12 1 School of Medicine, Case Western Reserve University, Cleveland, Ohio, United States, 2 Department of Dermatology, University Hospitals, Cleveland, Ohio, United States, 3 College of Medicine, Northeastern Ohio Medical University, Rootstown, Ohio, United States, 4 Department of Dermatology, Case Western Reserve University, Cleveland, Ohio, United States

Biologic therapy is associated with better outcomes for moderate to severe psoriasis compared to systemic or topical therapies. Do prescription patterns in a national expenditure database reflect economic assistance and entity in optimal care delivery? To determine the degree to which adults below the federal poverty level (FPL) are prescribed biologics, we performed a retrospective cross-sectional study using pooled data from the Medical Expenditure Panel Survey (MEPS). A prescription was defined by a biologic Mutual Lexicon code linked to a psoriasis ICD code. Demographics and biologic prescriptions were compared between psoriasis patients below versus at or above the FPL using weighted-subject design. We identified 1,437,792 yearly-weighted patients with active psoriasis (1,356 total unweighted) between 2007 and 2018, of whom 12,392 were below the FPL (166 total unweighted). Psoriasis patients below the FPL were less likely to be prescribed biologics for psoriasis than psoriasis patients at or above the FPL (5% vs 12%; p = 0.01). In addition, they were more likely to be black (p = 0.02), be formerly or never married (p = 0.001), have public or no insurance (p < 0.001), have no degree (p = 0.02), and self-report poor/fair physical health or mental health (p < 0.001). Finally, psoriasis patients below the FPL taking biologics had lower median biologic medication expenditures per person than psoriasis patients at or above the FPL taking biologics ($6,511 vs $12,152; p = 0.003). Biologics are not prescribed equally among all socioeconomic cohorts, notably across racial and socioeconomic strata such as black patients and patients with no degree. Further studies are needed to identify the financial assistance programs that best address the persistent hurdles to equity in the delivery of holistic care in the United States.

Factors in topical steroid selection: A qualitative study

B Kasamatsu, A Faletsky, JJ Han, LM Pérez-Cháda, MS Lee, C Lopez, K Lee, A Mostaghimi and A Lachman Dermatology, Brigham and Women’s Hospital, Boston, Massachusetts, United States

Rising topical steroid (TS) costs place increasing financial burdens on patients. In this study, we evaluate factors dermatologists consider when choosing a prescription TS. We conducted a qualitative study using semi-structured interviews (6/2020-11/2020) of board-certified dermatologists until thematic saturation was reached. Each interview was independently coded by 2 coders. Code frequency and interrater reliability (IRR) were determined using NVIVO software. 16 dermatologists were interviewed and divided evenly among each practice setting (academic, non-academic, and private practices). IRR ranged from k = 0.86 to k = 0.98, indicating excellent agreement. The most important physician factor when choosing a steroid was patient access to medication (63%). Most (81%) thought about cost regularly with 62% of physicians being unable to afford prescriptions. All physicians reported patients unable to pick up their prescription due to cost. Physicians reported not knowing medication costs due to variability of insurance coverage (94%), fluctuating drug prices (75%) and lack of transparency (75%), with 75% of physicians learning about drug costs from patients during follow up. 87.5% of physicians were willing to use a system in which TS are automatically substituted for a cheaper alternative of the same vehicle and class. Physicians recommended removing barriers to knowledge of drug costs may result in greater ability to prescribe affordable drugs (75%), less patient cost (64%) and improved patient care (43%). Drug costs are a major barrier to access for patients, a problem exacerbated lack of cost transparency before placing a prescription. In turn, physicians rely on patients for feedback on prescription costs. Scarce access to drug cost information may prevent patients from receiving appropriate and timely treatment. Creative solutions are needed to improve pricing transparency and assist physicians in prescribing affordable medications.

Sociodemographic factors associated with scabies in the inpatient setting

DX Zheng1, C Colisson1, K Mulligan1 and JF Scott1 1 Dermatology, University Hospitals, Cleveland, Ohio, United States and 2 Dermatology, Johns Hopkins University School of Medicine, Baltimore, Maryland, United States

Background: Scabies is a highly contagious skin infestation most often spread by skin-to-skin contact. Information regarding the burden of scabies is limited. Our aim was to investigate sociodemographic factors associated with presentation of scabies in the inpatient setting. Methods: We performed a retrospective analysis of the National Inpatient Sample from 2012 to 2016. Our primary outcome was either a primary or secondary diagnosis of scabies at any point during the inpatient admission (ICD-9-CM 133.0 and ICD-10-CM B86). Exposures were age, sex, race/ethnicity, insurance type, hospital income, and median household income by zip code. Generalized estimating equations were used to account for endogeneity, with the correlation of scabies cases. Results: Among 363,160,000 inpatient admissions, 29,130,000 inpatient diagnoses of scabies were made. Exposure to Homeless persons (aOR 12.44, 95% CI 11.45-13.52) and age <19 years (aOR 1.64, 95% CI 1.51-1.78) were the sociodemographic factors most strongly associated with diagnosis of scabies. Compared to patients from the Native American tribe, Hispanic patients were more likely, and Black inpatients were less likely (aOR 0.65, 95% CI 0.61-0.69), to have a diagnosis of scabies by the end of their hospital admission. Compared to patients with Medicare, those with Medicaid (aOR 1.36, 95% CI 1.28-1.44), self-pay hospital stays (aOR 1.25, 95% CI 1.19-1.30), and no charge hospital stays (aOR 1.11, 95% CI 1.04-1.19) were more likely to be diagnosed with scabies. Conclusions: We identified several sociodemographic factors associated with an increased likelihood of scabies diagnosis in the inpatient setting. These findings may assist in developing targeted interventions toward decreasing the incidence and burden of scabies in United States hospital systems.

Boundary-aware convolutional neural network for skin lesion segmentation in clinical images

S Zhao2 and X Chen2 1 School of Automation, Central South University, Changsha, Hunan, China and 2 Xiangya Hospital Central South University, Changsha, Hunan, China

The segmentation of skin lesions is a key step in automatic skin lesion analysis. In recent years, the methods based on convolutional neural networks (CNNs) have achieved great success in automatic skin lesion segmentation, but they still face some problems, such as poor generalization performance, blurry boundary and so on. In addition, most of these methods mainly focus on dermoscopy images, and lack of the attention to clinical images. In this paper, we propose a novel boundary-aware convolutional neural network (BACNN) for skin lesion segmentation in clinical images. Compared with the existing skin lesion segmentation methods that only have the segmentation branch, we create an additional boundary pre- diction branch and use the boundary prediction map to assist the segmentation task to obtain more refined segmentation results. To validate the effectiveness of our method, we have constructed a skin lesion segmentation dataset containing 1768 clinical images of six skin diseases (including basal cell carcinoma, nevus, seborrheic keratosis, verrucaous cell carcinoma and Bowen’s disease). These clinical images are collected from Xiangya Hospital of Central South University, and the segmentation truth of each image is labeled and verified by three expert dermatologists. On this dataset, our method can achieve the Dice coefficient and Jaccard index of 92.68% and 86.88%, respectively, which is higher than the existing skin lesion segmentation methods. We hope that our method can improve the overall performance of the existing clinical image analysis system and be verified in a wider range of clinical practice.

Prevalence of non-validated disease scores in dermatology clinical trials

J Olayinka1, ZH Hopkins2, JM Swink3, Z Frost1 and AM Secret1 1 School of Medicine, SUNY Downstate Health Sciences University, New York, New York, United States, 2 Department of Healthcare System Inc, Fort Lauderdale, Florida, United States, 3 School of Medicine, University of Utah Health, Salt Lake City, Utah, United States and 4 Department of Dermatology, University of Utah Health, Salt Lake City, Utah, United States

The nature of dermatologic disease sometimes necessitates non-interval or measured outcomes to address the complexities, and often multifactorial, impact of disease presentation and patient impact, clinical scores are often used. These can pose difficulties as varying outcomes from clinical trials make later comparisons difficult and can hinder systemic reviews that form the backbone of clinical guidelines. Thus, ideally, a well-validated and generally-used outcome is superior to a trial-specific or institution-specific score. To query the prevalence of non-validated score-use, we identified all clinical trials published in BJD, JAMA Dermatology, JAAD, JEADV, and JID from 2015-2019. Results are descriptive. Of 265 total trials, 154 used scores as their primary outcome (58.1%). Most were validated (n=111, 72.1%), but 18.9% were non-validated (n=29) and 7 used both (4.55%). Logistic regression demonstrated no statistically significant change in non-validated score use over time, nor with funding source or use of a biostatistician. The majority of the non-validated scores were used in rare diseases such as Sturge-Weber syndrome, but for 13/29 trials (44.8%) (psoriasis, actinic keratosis, scarring, urticaria, and vitiligo), existing validated scores had been previously published. These demonstrate an area for improvement. Where possible investigators should use validated score outcomes or include validated scores for comparison if testing a non-validated score. Reviewers and editors should question non-validated scores, especially for conditions where well-validated, commonly-used, scores are available.

The impact of atopic dermatitis on caregivers of patients of all ages

N Tomaszewski1, K Barra2, W Smith Begolka1, K Capozza1, S Etkenhari4, KZ Tullous1 and K Abubazari1 1 University of California San Francisco, San Francisco, California, United States, 2 National Eczema Association, San Rafael, California, United States, 3 Asthma and Allergy Network, Vienna, Virginia, United States, 4 Global Parents for Eczema Research, Santa Barbara, California, United States

Atopic dermatitis (AD) carries a substantial burden. Prior research has focused on patients and caregivers of children separately; therefore, we sought to examine the relative impact on patients and caregivers of patients with AD of all ages. Data are from 1,508 respondents to the ‘more than Skin Deep’ survey fielded online as part of the US FDA’s patient-focused drug development initiative. Among 399 caregiver respondents, 43% cared for young children ages 0-5, 47% cared for children ages 6-17, and 10% cared for adults. The primary outcome, a 5-category measure of overall impact, was similar among patients and caregivers (51% vs 50% significant impact, p = 0.436), and impact was greater among caregivers of adults as compared to caregivers of children (73% vs 51% of respondents reported high or significant impact, p = 0.008). AD severity, mood symptoms, symptom control, topical and adjunctive treatment usage, and time spent managing AD were independently predictive of overall impact in a multivariable ordinal regression model. Among domain-specific impact scores, sleep, family responsibilities, family dynamics, and life decisions were most impacted for caregivers of all ages; diet was more impacted for caregivers of children of all ages. Caregivers of children (including caregivers of adults) report higher impact on family responsibilities and quality of life compared to caregivers of older children and adults. In conclusion, AD is impactful for both patients and caregivers, including caregivers of adults, across multiple life domains.